Major Applied Research Paper No. 15

**SOCIAL FINANCING AND FEE-FOR-SERVICE
COST RECOVERY IN NIGER**

**Phases 2 and 3:
Field Work, Research Results,
and Policy Recommendations**

Submitted to:

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**By:
Abdo S. Yazbeck
Mark Wenner
Abt Associates Inc.**

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ABSTRACT

In order to test two payment methods and three interventions for quality of care improvements, the Government of Niger implemented a cost-recovery pilot project in its Boboye and Say districts. A third district was used as a control. One method the project tested was a form of social financing (tax and fee), and the second method was a fee charged for each episode of illness. The results of the project test, which would include data on revenue generation, quality of care, access, and management, would help Nigerien policymakers decide which type of cost-recovery system to implement nationwide. This paper addresses the issue of access—primarily, the effect of cost recovery on the use of health systems by vulnerable groups, including the poorest quartile and the elderly.

Changes in health care-seeking behavior, after the introduction of the changes, were studied. In general, the social financing method was the preferred choice by an overwhelming majority of the respondents, preferred over both the current system, and the other proposed method of a fee per each episode of illness. Both preventive and curative care was sought by a larger percentage of respondents in the social financing district than in the other two districts tested.

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FOREWORD

This paper is one in a series of reports on findings and policy recommendations from Phase 3 of the major applied research conducted by the Health Financing and Sustainability (HFS) project.

The HFS project is a five-year initiative funded by the United States Agency for International Development (USAID). The project's mandate is to provide technical assistance, conduct applied research, implement training, and disseminate information on health care financing throughout the developing world. The project seeks to influence policy change by advancing knowledge; testing and improving delivery, financing, and administrative methods; strengthening institutional capacity; and enhancing technical capabilities. To date, HFS has been involved in health care financing activities in over 30 developing countries around the world. Applied research activities account for one-quarter of HFS project activities.

HFS has conducted its major applied research in three phases. Phase 1 included a review of the literature and past experience and the development of a conceptual framework. The papers generated under Phase 1 are essentially conceptual and methodological, and are therefore oriented to field researchers and teachers. Nevertheless, because these papers also underscore current gaps in knowledge, they are of use to international donors, health ministry decision-makers, and others who are concerned with health care policy.

Phases 2 and 3 were designed to reduce the gap in current knowledge identified in Phase 1. Phase 2 comprised the field research and data collection, and Phase 3 has involved data analysis, report writing, and dissemination. Phase 3 papers have as their main audience developing country decision-makers and policymakers inside and outside the countries where the research was conducted. Methods, findings, and recommendations are written in nontechnical language, with technical information provided in appendices.

Phase 3 products also will be of interest to international donors because they validate or reject important hypotheses and evaluate existing policies. These papers also test new or improved research methods, identify directions for further research, and contribute empirical information to the general body of knowledge. Therefore, they should be useful to researchers and academicians.

THE ROLE OF APPLIED RESEARCH IN HEALTH POLICY REFORM

Health financing reform is a prominent political issue and a priority for the health sectors around the world. In industrialized nations, containing health care costs has been one main impetus behind efforts to reform health financing policies. In developing countries, a key motivating factor for reform efforts has been the growing demand on increasingly strained public resources represented by the traditional commitment of governments to provide free health services to all.

At the center of the policy debate are discussions about ways to improve equity and efficiency. Ideally, health care financing practices and policies should promote both equity (financial and physical access to care) and efficiency (maximization of health gains through reductions in costs of production and increases in appropriate consumption). These discussions also include debate about the impact of health financing reforms on quality of care, access by the poor, and the respective roles of the public and private sectors.

Formulating effective policies to address these issues requires sound empirical information about a broad range of questions on the demand and supply sides of the market for health services. In many

developing countries, sound empirical data are seldom available, and the public debate about health financing is often dominated by conventional wisdom that may not be grounded in reality. Some examples of conventional wisdom that require empirical testing include:

- "The poor will not pay for health care services."
- "The private sector is more efficient than the public sector in producing health services."
- "The private sector has no role in meeting the public health agenda."
- "Where the largest share of total health resources is spent on curative care, the allocation of resources is inefficient."
- "Social financing and risk-sharing schemes will not be effective in poor, rural areas."

A new body of research has begun to emerge that tests the validity of some of these common beliefs about health financing. For example, empirical studies of health care demand in developing countries have demonstrated that, when given the choice, even the poorest often prefer to pay for better quality health care rather than obtain free but low-quality health services.

Public policy concerning health finance can greatly benefit from improved knowledge about such issues as the willingness of people to pay for health services, the relative efficiency of public and private providers, private sector roles, and the cost effectiveness of investment in curative and preventive care. Yet despite the greater attention recently given to applied research in health finance, large gaps in our knowledge remain.

AN AGENDA FOR APPLIED RESEARCH

HFS applied research seeks to advance knowledge in key policy areas and develop analytical capabilities among developing country researchers. The research is designed to address key policy questions, explore neglected areas of research, improve analytical methods, and test new methodological techniques. With the review and advice of an external Technical Advisory Group, the project identified four broad areas of inquiry where major applied research was warranted: cost recovery, productive efficiency, social financing, and the private sector. To meet USAID contractual requirements, the project also identified nine specific topics within these categories (see *Exhibit 1-1*).

EXHIBIT 1-1 HFS MAJOR APPLIED RESEARCH: AREAS, TOPICS, AND QUESTIONS		
RESEARCH AREA	PHASE 1: RESEARCH TOPIC	MAIN RESEARCH QUESTION
COST RECOVERY	Quality of Care	Willingness to pay for improvements in quality
	Protecting the Poor	Design of equitable cost recovery systems
	Efficiency in Consumption	Design of monetary and other mechanisms that promote efficient patterns of demand for care
PRODUCTIVE EFFICIENCY	Pubic Sector Reform	Feasibility of improving efficiency in production through personnel incentives
	Reallocating Public Sector Spending	Definition of optimal allocation pattern and appropriateness of current allocation patterns
SOCIAL FINANCING	Expanding Its Role	Feasibility of risk sharing for the poor
PRIVATE SECTOR	Development of Private Health Care Markets	Determinants and implications of private sector development
	Public-Private Differences in Efficiency	Existence of differences in productive efficiency between government and private providers
	Public-Private Interactions	Feasibility of socially beneficial collaboration between government and private sector

HFS conducted literature reviews (Phase 1) for all but one of these nine topics (the exception was reallocating public sector spending). At USAID's request, an additional field research topic—an assessment of the economic impact of malaria—was also studied. Field research has been conducted (Phase 2) and analytical papers have been written (Phase 3) in all four of the major research areas. These cover the six specific topics as follows:

▲ Willingness to pay for improvements in health service quality in the context of cost recovery;

▲ Impact of health service quality improvements on costs, efficiency, and demand;

▲ Efficiency of public sector health services;

▲ Comparison of public and private sector efficiency in health service delivery;

▲ Impact of social financing of health services on demand, equity, and sustainability;

▲ Development of private sector health services; and

▲ Economic impact of malaria.

In addition to these applied research papers, HFS has produced a wide array of research instruments and data bases. (A list of these is provided in a separate project document, "Research Instruments and Databases of the Health Financing and Sustainability Project.")

POLICY-ORIENTED APPROACH TO APPLIED RESEARCH

HFS has conducted all the field research activities with active collaboration and involvement of local researchers and decision-makers. In addition, when considering alternative field sites for major applied research, HFS sought to identify opportunities where research results would feed directly into the policy reform process.

In Niger, for example, HFS provided technical assistance to the government to test two cost- recovery systems for curative care in ambulatory public facilities: a fee per episode of illness and a household tax with a co-payment. Major applied research was conducted to assess and compare key indicators under the two financing systems, including the improvements in quality of care, costs of quality improvements, people's willingness to pay for quality improvements, and equity implications of the financing methods. Research activities were intertwined with technical assistance to design and implement improved management systems for health facilities, new management procedures for clerical personnel, and improved diagnostic and treatment practices for medical staffs.

In Senegal, HFS conducted applied research to assess various dimensions of the current health system, including the legal and regulatory framework of health financing; effectiveness of village health committees; costs, financing, and efficiency of public and private providers; size, role, and evolution of the private sector; and demand for health care. The government of Senegal is planning major regional demonstration projects to implement some of the recommendations that emerged from this research.

All HFS major applied research products undergo a formal review process that involves project staff, external experts from academic and international institutions, and members of the project's Technical Advisory Group. HFS seeks excellence in its products and welcomes comments or suggestions about its research work.

If you have questions or comments about our applied research work, please contact the Technical or Applied Research Directors. For information about or to order written HFS products on research, technical assistance, and training, please contact the project's Information Center.

Ricardo A. Bitran
Director of Applied Research

EXECUTIVE SUMMARY

BACKGROUND

The Government of Niger implemented a cost-recovery pilot test project in its non-hospital sector in two districts, Boboye and Say, from 1993-1994. The project was designed to test two different payment methods along with interventions for the improvements of quality of care. The first method was a form of social financing (annual adult tax, plus a small fee per episode of illness at time of use) and the second was a pure fee per episode of illness. Household and facility data were collected from the two districts and from a control district, Illéla.

Three interventions for quality of care improvements took place along with the introduction of cost recovery. The first was the training of the health professionals in Ministry of Health facilities in Boboye and Say in diagnostic and treatment protocols. The second intervention was an injection of pharmaceutical products distributed to the health facilities involved with the pilot project and financed through a grant from the World Bank. The third intervention was an improvement in the management information system for accounting.

The objectives of this pilot test were to aid Nigerian policymakers in making decisions about the type of cost-recovery system to implement nationally. Areas of interest to policymakers included:

- Revenue generation;
- Quality of care;
- Financial accessibility or equity of access; and
- Management costs and burdens.

PURPOSE

This paper addresses one of the pilot test objectives, that of access. Of special interest is the effect of cost recovery on use of health services by vulnerable groups. We expect that charging for services that were previously free could make the services financially inaccessible to the poorest group. Implementation of quality of care improvement, such as drug availability, in addition to cost recovery may make public facilities more attractive, however, especially to those having to travel long distances at relatively high cost. Furthermore, it is important to explore the different effects of the two payment methods both relative to each other and relative to the absence of any cost recovery.

This study focuses on the changes in health care-seeking behavior after the introduction of the two payment methods. It also focuses on the willingness and ability of the population to pay for quality improvements and their preference of payment method. The list of questions addressed includes:

1. What is the net effect of the increased financial burden of cost recovery and the improvements in quality of care on seeking care at public facilities? How are vulnerable groups affected?

2. Is there a willingness and ability to pay for quality improvements? How does this willingness and ability to pay change by income group, distance from public facilities, and other explanatory variables?

3. Is social financing preferred to fee per episode of illness? Are there differences in preferences of payment mechanisms by district, income group, and distance from facility?

METHODOLOGY

This paper uses household data collected before and during the pilot test to evaluate the changes in health care-seeking behavior and document preferences. Household surveys were conducted six months before the implementation of cost recovery and quality improvements and six months into the implementation. Descriptive and econometric tools were used to analyze the data.

FINDINGS

Impact on Utilization of Health Services

The first questions listed earlier deals with health care-seeking behavior changes due to the implementation of cost recovery. The main findings included:

▲ With respect to the net effect on seeking care for illness or injury at a public facility, the probability increased in the social financing district, did not change in the fee per episode of illness district, and decreased in the control district. This means that the negative effect of increasing price was more than offset by the positive effect of quality improvements.

▲ By stratifying the data by gender, the findings show that, for women, there was no change in health care-seeking behavior in the social financing and fee per episode of illness districts, but a decrease in the probability of seeking treatment in a public facility in the control district. This means that without cost recovery and quality improvements, women were less likely to seek care at public facilities and their situation deteriorated, while in the two test districts women were no worse off.

▲ By stratifying the data by age, the findings show that for children under 15 and the elderly, there was an increase in the probability of seeking care in the social financing district, no change in the fee per episode district, and a decrease in the control district.

▲ The only change for the health care-seeking behavior of the poorest quartile was in the control district, which showed a decrease in the probability of visiting a facility when ill. This means that the negative effect of increasing the price was offset by quality improvements, even for the poorest segments of the population, in both the test sites.

▲ With respect to preventive care, the probability of enrolling in a prenatal check-up program increased in the social financing district and did not change in the other two districts.

The list of findings indicates that households in the two cost-recovery districts are more likely to take advantage of the health facilities when sick than are households in the control (free services) district. When the data was stratified, the poorest quartile — children, the elderly, and women — showed a higher inclination to seek care when ill in the cost-recovery districts than in the control district. By comparing the two cost-recovery districts, it is clear that more households in the social financing district, Boboye, took advantage of the health facilities than households in the fee per episode of illness district, Say.

Willingness to Pay for Improvements

The results on utilization of health care services in the cost-recovery districts showed a willingness and ability to pay for quality improvements. By including questions in the second household survey that helped us analyze the stated preferences of individuals about the willingness to pay, we found that:

- ▲ The overwhelming majority of the people surveyed prefer the cost-recovery and quality improvement interventions to the previous health delivery system.

- ▲ There is a strong willingness to pay for quality improvements, especially increased drug availability. This is manifested in answers to questions about willingness to pay for improvements and willingness to pay more than the current cost for improvements. This result was the same for all income groups, regardless of gender or distance travelled to public facilities.

Preferred Financing Method

Regarding preference of payment mechanism, the findings included:

- ▲ Most respondents in both intervention districts prefer the payment method of social financing over fee per episode of illness. This finding held for all groups, regardless of income, gender, or distance travelled to the facility.

- ▲ The two main reasons given for the choice of the social financing method of payment were that it costs less and was easier to finance. In other words, pooling the risk was more attractive than self-insuring.

Based on the findings summarized here and in the body of the text, it is clear that the social financing payment method resulted in better outcomes than the fee per episode of illness method, and that both cost-recovery methods resulted in better outcomes than the option of no cost recovery, represented by the control district. In the social financing district, seeking both preventive and curative care was higher than in the other two districts, and respondents in both cost-recovery districts (Boboye and Say) overwhelmingly preferred the social financing method to fee per episode.

1.0 INTRODUCTION

1.1 BACKGROUND

The Government of Niger implemented a cost-recovery pilot test project in its non-hospital sector in two districts, Boboye and Say. The project was designed to test two different payment methods along with interventions for the improvements of quality of care. In the Boboye district, the method of cost recovery was an indirect payment that collects a tax from all adults and charges a fixed co-payment per episode of illness. Another method, in the Say district, used a direct payment method of a fixed fee per episode of illness. A third district, Illéla, was used as a control district with no quality improvement interventions or cost recovery.

Three interventions for quality of care improvements took place in addition to the introduction of the cost recovery. The first improvement was training the health professionals in the Ministry of Health facilities in Boboye and Say in diagnostic and treatment protocols. The second intervention was an injection of pharmaceutical products distributed to the health facilities involved with the pilot project, financed through a grant from the World Bank. The third intervention was an improvement in the management information system for accounting.

The objectives of this pilot test were to aid Nigerien policymakers in making decisions about the type of cost-recovery system to implement nationally. Areas of interest to policymakers included:

- Revenue generation;
- Quality of care;
- Financial accessibility or equity of access; and
- Management costs and burdens.

To answer some questions about these areas of interest, a number of data collection efforts took place. A baseline household survey was conducted six months before the introduction of cost recovery.[1] The survey covered Boboye, Say, and Illéla. Facility data collection took place bi-monthly after cost recovery started. A follow-up household survey was conducted six months after the beginning of cost recovery and covered the same districts. Finally, some data on quality of care and perceptions of quality of care were collected from the facilities.

This paper focuses on the third area of interest to policymakers—financial accessibility or equity of access. Data from both household surveys is used to analyze changes in health care-seeking behavior before and after the cost-recovery interventions and to analyze differences across districts. Another area analyzed is the willingness and ability of the population to pay for quality improvement in public facilities and the preferences in methods of payment. The data provided by households will be analyzed by population subgroups to study the effects of cost recovery on vulnerable groups.

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[1] A description of the household questionnaires is presented in Section 2.2.

Other papers on the pilot test in Niger address the remaining areas of interest to policymakers, including:

- ▲ "Rapport semestriel sur les performances du recouvrement des coûts arrondissements de Boboye et de Say, mai à octobre 1993," Prépare par Francois Diop, Midou Kailou, et Ousmane Oumarou.

- ▲ "Performance du recouvrement des coûts arrondissements de Boboye et de Say, mai 1993—fevrier 1994," Prépare par Francois Diop, Midou Kailou, at Ousmane Oumarou.

- ▲ "Schemas d'utilisation des soins de santé analyses comparatives," Prépare par Francois Diop.

- ▲ "Cost Recovery and Improved Drug Availability: Implications for Total Patient Treatment Costs," by Annemarie Wouters and Anthony Kouzis.

- ▲ "Econometric Analysis of Demand For Outpatient Care in Niger," by Randall Ellis and Mukesh Chawla.

1.2   DESCRIPTION OF PAYMENT METHODS

The indirect payment method used in Boboye is a combination of a tax and an episode of illness co-payment. An annual head tax of 200 FCFA was collected for every adult in the district (the tax amount was equal to $0.78 before devaluation and $0.36 after). Individuals visiting the facilities for treatment were asked to pay 50 FCFA ($0.20 before devaluation and $0.09 after) per episode of illness for adults and children over 5 years of age and 25 FCFA ($0.10 before devaluation and $0.04 after) per episode of illness for children 5 and under.

The direct payment method used in the Say district is a payment per episode of illness with no prepaid tax. The rate for adults and children older than 5 is 200 FCFA per episode, and for children age 5 or under, 50 FCFA per episode. Both the direct payment and the indirect co-payment components are per episode of illness, and not per visit or service rendered. The rationale for this condition on payment was to encourage return visits.

1.3   PURPOSE AND SCOPE OF THE STUDY

As mentioned in Section 1.1, this paper analyzes issues relating to the equity and financial accessibility brought about by the introduction of social financing and fee per episode of illness cost recovery with quality improvement interventions. With the introduction of cost recovery to a public system, important questions should be raised concerning the effects on the health status of the population. The most important question is whether such interventions inhibit the use of medical care by vulnerable and marginalized population groups.

Any effort to increase resource mobilization to the health sector through user fees to improve sustainability runs the risk of decreasing the demand for health care by raising the price paid for services. This decrease in demand will concentrate mainly in the poorest groups, and that may lead to deterioration in health. It is important, therefore, to track the health care-seeking behavior of all population groups. It is in this sense that equity is addressed in this paper, equity in the use of health services or in benefits received.

Other aspects of the interventions in Boboye and Say are quality of care improvements, especially improvements in drug availability and training for public facility personnel. It is important to assess the impact of these quality of care improvements on the demand for health care by all population subgroups. An interesting question is whether the improvements in quality of care produce an increase in demand for the services that is larger than the decrease in demand due to higher prices.

A related issue to quality improvement impact is the willingness and ability of the population to pay for the changes in drug availability. Are people interested in the quality improvements that were brought in by this pilot test? Are they willing to pay for them? Would they choose to pay if it was not required? Are the poorest segments of the population able to pay? These are important questions that need to be addressed if the cost-recovery approach is to be generalized.

The method of collecting payment for quality of care improvements is another issue that is explored by this pilot test. Section 1.2 described two different payment methods used in Niger. It is important to find out the advantages and disadvantages of each method both in theory and in application. In addition to revenue generation differences and management cost and burden differences—which are addressed in other HFS papers—questions relating to the different effects on demand and utilization need to be analyzed. Since the quality of care interventions are similar in the two districts, it is possible to assess behavioral changes due to payment methods and by population groups.

A related issue to the two payment methods is the preferences of the population between the two. The financial burden is different in each method. The indirect method offers an insurance system, whereas the direct method allows for more choice. The population of each of the test districts is familiar with one of the systems, but not both. Given the choice, which of the two methods would a majority of the population choose? Why? Does this choice differ by district, and how? Does this choice differ by income group or by distance from facility?

These issues and questions represent the scope of this paper. A unique and rich data set is used to answer the questions on household behavior and preferences. A brief description of the data set is presented in Section 2.2.

1.4   ORGANIZATION OF REPORT

The next section addresses the research and data issues. A summary of the theoretical implications of social financing schemes from the HFS project's Phase I paper is presented first. A description of the data set used here follows, focusing on the unique nature of the data and the richness of the information. The third subsection describes the methodology and research issues.

Section 3.0 presents the main findings of this report. The first subsection covers the differences across time and district in health care-seeking behavior. The second subsection covers the findings related to choices of individuals and households, and the willingness and ability to pay. A summary and concluding remarks are presented in Section 4.0.

2.0 RESEARCH AND DATA ISSUES

2.1   IMPLICATIONS OF SOCIAL FINANCING SCHEMES

This section summarizes some of the relevant findings of the HFS Phase I paper on social financing.[2] One of the main reasons for social financing schemes is resource mobilization. This makes it an attractive option for developing countries because, historically, resources from general revenue have been inadequate. Because of this lack of resources, public facilities tend to lack drugs and supplies, especially in rural settings, due to urban bias.

Social financing is one approach to resource mobilization that can help ease the financial strain on the public sector. Direct cost recovery is another approach. The social financing option has some advantages and disadvantages that are well documented in economic theory but not well tested in empirical or experimental work.

Two areas of concern are efficiency and equity. Health insurance systems generally tend to distort efficiency, due to asymmetric information between subscribers, insurers, and providers. This informational asymmetry can lead to market failures or distortions in areas of adverse selection, moral hazard, and/or high administrative costs. Adverse selection means that individuals with high risk will choose to insure because they know that they will be using the system. This may increase the cost and drive out healthier individuals. Under mandatory social financing, adverse selection is not an issue because joining the insurance system is not a choice, and therefore risk is spread across all individuals. Moral hazard refers to over-utilization of resources resulting from the reduced marginal cost of seeking care due to insurance.

The equity issue can be addressed in terms of resource generation and benefits received. The level of inequality usually depends on the type of insurance system used. Most forms of financing are regressive in nature because poor people end up paying a larger portion of their income than rich people. A flat tax is more regressive than a tax that is based on the level of income.

Inequity in benefits is usually not due to the provisions of insurance system, since most systems deliver according to need. Factors other than the system itself, however, can have an effect on utilization and therefore on equity. One such factor is geographic location. The proximity to health care delivery systems is an important determinant of usage and, hence, of benefits. Other factors include educational and cultural variables.

This paper uses the two household surveys to assess the effects of social financing and direct cost-recovery schemes on health care-seeking behavior by socioeconomic groups and to look at efficiency and equity issues through choices made and preferences revealed.

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[2] Gerard M., La Forgia, Charles C. Griffin, and Randall R. Bovbjerg, "Extending Coverage and Benefits of Social Financing Systems in Developing Countries, Phase I."

2.2 DATA

A number of data collection efforts were undertaken to evaluate the pilot project. ***Exhibit 2-1*** presents a chronology of interventions and data collection efforts. The baseline household survey was conducted more than six months before the introduction of cost recovery and distribution of drug supplies. The follow-up household survey was conducted six months after the interventions.

EXHIBIT 2-1 CHRONOLOGY OF ACTIVITIES IN NIGER (Shaded areas indicate completion of activities in the appropriate district)				
ACTIVITIES	APPROXIMATE DATES	BOBOYE (tax with co-payment)	SAY (Fee Per Episode)	ILLÉLA (Control)
Tax Collection	Early 1991	▓		
Set-up of Management Information Systems	June - Dec. 1992	▓	▓	
Training in Diagnostic and Treatment Protocols	June - Dec. 1992	▓	▓	
Facility Data Collection	Oct. 1992 - Feb. 1994	▓	▓	
Baseline Household Survey	Oct. - Nov. 1993	▓	▓	▓
Drug Distribution and Introduction of Cost Recovery	May 1993	▓	▓	
Follow-up Household Survey	Oct.- Nov. 1993	▓	▓	▓

Both household surveys covered the same regions in the three districts of interest—the two test districts and the control district. The first survey had a sample size of 14,410 individual respondents from 1,825 households in 102 geographic clusters. The second household survey had 13,049 individuals, 1,834 households, and the same number of clusters. ***Exhibit 2-2*** gives a breakdown by district.

Both household surveys included modules on socioeconomic status, household expenditures and income[3], curative care in a two-week recall period, and preventive care. A module on willingness and ability to pay for quality improvements was added to the follow-up survey. Questions on preferences between the two systems were also added in the willingness and ability to pay module.

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[3] Per capita expenditure is used as a proxy for income throughout this paper.

EXHIBIT 2-2 SAMPLE INFORMATION								
	BASELINE				FOLLOW-UP			
	SAY	BOB.	ILL.	Total	SAY	BOB.	ILL.	Total
No. of clusters	34	34	34	102	34	34	34	102
No. of Households	605	611	609	1,825	612	612	612	1,834
No. of Individuals	4,723	5,571	4,116	14,410	4,221	4,848	3,980	13,049

2.3   RESEARCH AND METHODOLOGICAL ISSUES

2.3.1   Research Questions

Research issues addressed in this paper can be grouped into two categories: comparisons across districts and over time, and stated preferences. In the first category, issues of changes in health status and health care-seeking behavior were addressed by comparing outcomes and behavior for population subgroups while controlling for observed socioeconomic factors.

An important measure of the effect of the interventions is health care-seeking behavior. To test the effectiveness of the interventions, it was assumed that the pilot test was designed to attract the population to the public facilities when sick. Econometric models were estimated to measure the changes across payment methods and districts and over time while controlling for socioeconomic variables. The data set was also stratified by gender, age, income group, and distance from public facility. By estimating the models with stratified data, the success of the pilot with respect to the most needy population groups was tested.

The second category of questions addressed in this paper is the stated preferences of the population from the two pilot test districts, Boboye and Say. The follow-up survey included modules on willingness to pay for quality improvements and on preferences about payment methods. Respondents answered questions about willingness to pay in the current cost-recovery system, as well as willingness to pay more if the current rates were inadequate to fund the system. Analyzing the answers by population groups gives us a picture of the demand for health care and the value attached to health care by different population groups.

Of interest as well were the preferences of the population, and the marginalized groups in it, about the best way to finance and recover money for quality improvements. Choosing one payment method over another shows us the demand for social financing schemes in rural areas and among the poorest segments of the population. Reasons given for the choices are also analyzed.

2.3.2   **Methodology**

In analyzing the various questions described in the previous section, this paper used both descriptive and econometric tools. The household data provided the ability to compare outcomes and preferences across districts, payment methods, and over time. Dependent variables were analyzed for population subgroups of interest, then econometric models with appropriate error structures were estimated to control for socioeconomic explanatory variables.

Socioeconomic characteristics and other explanatory variable were used in two ways in this paper. First, they were used as control in across-district models to ensure that differences in important variables are due to policy changes and not to heterogeneity in the samples. The explanatory variables were also used to stratify the sample (by gender, age, distance from facility, and income). In models for stratified samples, the remaining explanatory variables were used for control.

Three types of models were used in the econometric analysis: ordinary least squares (OLS), discrete dependent variable (logit), and censored dependent variable (tobit). The choice of the econometric model depends on the structure of the dependent variable. If dependent variables were discrete, then logit models were estimated. Tobit and OLS models were estimated for the same dependent variables, but for different sample sizes.[4]

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[4] An explanation of the usage of Tobit and OLS models is presented in Section 3.2.3.

EXHIBIT 2-3 ECONOMETRIC MODELS		
MODEL	DEPENDENT VARIABLE	LOCATION
Logit	Probability of seeking care at a public facility when ill	• Exhibit 3-2 (summary) • Exhibits A-1 (results)
	Probability of having a prenatal check-up	• Exhibit 3-3 (summary) • Exhibits A-2 (results)
	Willingness to pay at facilities	• Exhibit 3-10 (summary) • Exhibit A-35 (results)
	Willingness to pay more at facilities	• Exhibit 3-20 (summary) • Exhibit A-36 (results)
	Willingness to pay more in taxes	• Exhibit 3-25 (summary) • Exhibit A-39 (results)
	Choice of payment method	• Exhibit 3-37 (summary) • Exhibit A-42 (results)
OLS	Amount prepared to pay at facility	• Exhibit 3-21 (summary) • Exhibit A-37 (results)
	Amount prepared to pay in taxes	• Exhibit 3-26 (summary) • Exhibit A-40 (results)
Tobit	Amount prepared to pay at facility	• Exhibit 3-22 (summary) • Exhibit A-38 (results)
	Amount prepared to pay in taxes	• Exhibit 3-27 (summary) • Exhibit A-41 (results)

3.0 FINDINGS

Following the organization developed in Section 2.3.1, the findings are presented in two groups. The first group focuses on the changes in health care-seeking behavior over time and across payment methods and districts. The second group focuses on the willingness and ability to pay and on preferences of payment methods.

3.1   HEALTH CARE-SEEKING BEHAVIOR

SUMMARY OF FINDINGS

- The percentage of respondents reporting an illness or injury in the two weeks prior to the interview that sought care at public facilities increased in the social financing district (Boboye) after the intervention, did not change in the fee per episode of illness district (Say), and decreased in the control district (Illéla).
- After controlling for socioeconomic variables and the distance of communities from public facilities, the social financing district had the highest percentage of ill individuals seeking care at public facilities after the intervention, followed by the fee per episode of illness district.
- The percentage of ill individuals seeking care at public facilities in Boboye increased for males, children under age 15, the elderly, and the richest income quartile, but did not change for women, by distance from public facility, or for the poorest quartile. Utilization did not change for Say, and decreased in Illéla for women, the elderly, communities located less than an hour's walk from the closest facility, and for the poorest and the richest quartile.
- The percentage of pregnant women enrolled in a prenatal check-up program increased in the social financing district and did not change in the other two districts.

The primary goal of any policy in the health sector is the improvement of the health status of the population. It is unreasonable to expect a six-month experiment in cost recovery and quality improvement in service delivery to have a measurable change in health status. A more realistic measure of the effects of the changes in financing methods and quality improvements in the short term is to look at changes in health care-seeking behavior. Comparing changes in health care-seeking behavior before and after in all three districts allows us to identify the effects of the changes to the system. Comparing changes in health care-seeking behavior between Say and Boboye shows the effects of the different payment methods on quality improvements in service delivery. Finally, comparing changes in health care-seeking behavior between Boboye and Illéla, and between Say and Illéla shows the effects of cost recovery and quality improvements on behavior.

Examining health care-seeking behavior by different socioeconomic groups, before and after the changes, allows us to analyze the equity implications of payment methods. Of special interest are the changes of health care-seeking behavior by income groups, gender, education level, age and age groupings, family size, and marital status. There are different ways of defining equity. This paper looks at equity considerations in terms of facility use by different groups (gender, age, income group, and distance from facility).

Respondents that reported an illness in the two weeks before the interview were asked a series of questions relating to actions taken to get treatment. They were first asked whether they sought treatment for the illness. Next, they were asked whether they chose home care or sought care outside the home. Those that reported seeking care outside the home were asked whether they simply purchased drugs from pharmacies or visited a facility.

EXHIBIT 3-1 SEEKING TREATMENT FOR ILLNESS (PERCENTAGES)						
	BOBOYE		SAY		ILLÉLA	
	Baseline	Follow-up	Baseline	Follow-up	Baseline	Follow-up
Sought treatment	80	83	59	61	55	57
Did not seek treatment	20	17	61	39	45	43
Received treatment at home	4	3	12	10	4	5
Did not receive treatment at home	96	97	88	90	96	95
Bought medicines for treatment	42	55	32	44	34	34
Did not buy medicines for treatment	58	45	68	56	66	66

The percentage of respondents seeking any type of treatment for illness or injury (***Exhibit 3-1*** and ***Graph 3-1***) in all three districts shows modest increases.[5] Receiving treatment at home decreased slightly for Boboye and Say respondents and increased slightly for Illéla respondents. The percentage of people purchasing medicines for treatment did not change in Illéla, but increased in Boboye and Say. It is not clear, however, whether the respondents distinguished between the payment they are now making at the government health facilities and purchasing drugs at the market. Lastly, the percentage of ill respondents that sought care in a public facility increased from 15 percent to 19 percent in Boboye, and decreased from 13 to 12 percent in Say, and decreased from 10 to 7 percent in Illéla.

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[5] Diop (1994) analyzes choices and alternatives in health care-seeking behavior in the three districts of this study. He finds that there are limited private sector alternatives to health care delivery and hypothesizes that the low level of utilization of public facilities may be due to the failure of the public system to provide high- quality care.
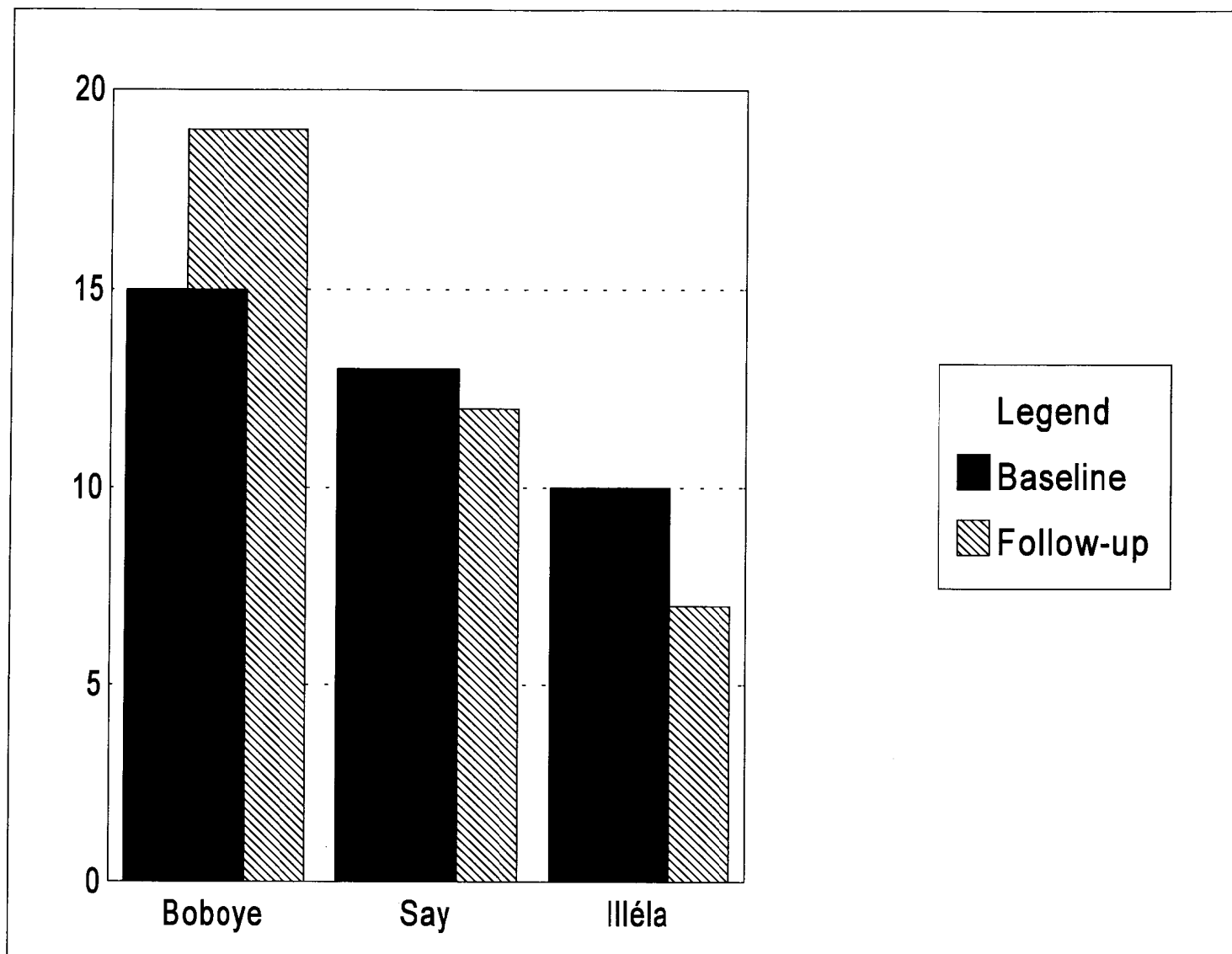
Graph 3-1: Seeking treatment for illness at public facilities conditional on reporting an illness

To test whether the changes in health care-seeking behavior are due to the interventions in the two cost-recovery districts and not to the socioeconomic characteristics of the samples in the baseline and follow-up surveys, a number of regression models were estimated that controlled for socioeconomic variables and distance to facilities. The dependent variable was the probability of seeking treatment in a public facility.

When socioeconomic and facility distance variables are controlled, there was no statistically significant difference among districts in the probability of seeking care at a public facility when ill in the baseline survey. After the intervention of cost-recovery and quality improvements, respondents in Boboye were more likely to seek care from a public facility than those in Say, and respondents from Say were more likely to seek care from public facilities than those from Illéla. The rankings in the follow-up are statistically significant. Other variables that had statistically significant effects on behavior were age, marital status, ethnicity, distance from closest facility, and educational attainment.

Looking at the changes in health care-seeking behavior over time in each district separately shows that there is a statistically significant increase in use of public facilities when ill in Boboye, even after controlling for other determinants of behavior. Respondents in Illéla were less likely to go to public facilities when ill, and there was no statistically significant change in behavior in Say. Other explanatory variables with statistically significant coefficients were age, marital status, ethnicity, income, distance to the closest facility, and educational attainment. Distance to closest facility was the only variable that was significant in all models.

The next step is to analyze the change in seeking behavior by population subgroup to understand the effects of the interventions on vulnerable groups. The stratification was by gender, age group, distance to facilities, and income quartiles. The results are summarized in ***Exhibit 3-1*** and are based on regressions presented in ***Exhibits A-1 through A-22***.

Starting with the findings for males and females separately, there were no statistically significant rankings among districts in terms of the probability of going to public facilities if ill in the baseline survey. In the follow-up survey, a statistically significant ranking emerges with Boboye ranked first, Say second, Illéla third. In Boboye, the probability of going to public facilities increased for males and did not change for females. No changes in health care-seeking behavior were statistically significant for either males or females in Say, and there was a decrease in seeking care at public facilities for females in Illéla.

There was no clear change in health care-seeking behavior for children under 5 years, which may be due to a small sample size. In children under 15 years, however, Boboye and Say trade places in the rankings with the probability of seeking care in a public facility higher in Say before the intervention and higher in Boboye after the intervention. Illéla was ranked third in both surveys. In the district-specific regressions, there was an increase in the probability of seeking care at public facilities in Boboye. Say and Illéla showed no statistically significant change. For the elderly, there was an increase in the probability of seeking care in public facilities in Say and a decrease in Illéla, but no statistically significant change in Say.

When the data set is stratified by distance to the closest public facilities, there was no statistically significant change in all but one district and distance group. In the district of Illéla, respondents living less than an hour's walking distance from a public facility had a lower probability of seeking care at that facility in the follow-up survey than in the baseline. For respondents living more than two hours' walking time from public facilities, the rankings in the baseline survey showed no statistically significant difference among districts, but Boboye ranked first and Say ranked second in the follow-up survey.

Finally, we turn to health care-seeking behavior by income quartile. Relative to the other two districts, Boboye was ranked first in the probability of respondents seeking care if ill at public facilities in the follow-up survey. No rankings existed in the baseline survey. In the district-specific regressions, the probability decreased in Illéla for both the richest and poorest. There was no statistically significant change in Say and an increase in the probability for the richest quartile in Boboye.

The distance variable, measured by walking time to the closest facility, was statistically significant in most regression models, indicating that the farther the distance, the lower the probability of seeking care. Other variables that were statistically significant in some of the models were age and income.

The findings on health care-seeking behavior indicate that, even after controlling for socioeconomic and other variables, the respondents in Boboye are more likely to seek care in public facilities after the cost-recovery and quality of care interventions. Another finding is that there is no clear change in seeking behavior in Say after the interventions. In the control district, Illéla, there was a decrease in use of public facilities over time. Looking at vulnerable groups, it is clear that for most groups, the probability of seeking care at government facilities after the intervention is highest in Boboye and lowest in Illéla.

The findings in this report concentrate on the results from the two household surveys. It is important, however, to compare some of the findings to the findings from the facility data. In the report on facility utilization (Diop, Kailou, and Oumarou, 1994), the authors confirm the increase in utilization of the health facilities in Boboye and, to a lesser extent, in Say, relative to the control district, Illéla.

The number of initial visits and the continuity of treatment clearly increased at the medical posts in the test districts.

Another aspect of health care-seeking behavior is preventive care. The two household surveys included a preventive care module focusing on women that were pregnant in the year before each survey. A question asked was whether women were enrolled in a program for prenatal checkups during their pregnancies. This variable is used as a proxy for preventive health care-seeking behavior. It is important to note that no payment was required for preventive services in the pilot project. Studying changes in preventive care-seeking behavior allows us to test whether imposing cost-recovery schemes on outpatient curative care has had an effect on seeking preventive care.

	Baseline Survey Ranking	Follow-up Survey Ranking	Boboye over time	Say over time	Illéla over time
	EXHIBIT 3-2 SEEKING CARE FOR ILLNESS AT PUBLIC FACILITIES (Each cell is based on a regression model)				
All Respondents	1.(BOB.) (SAY) (ILL.)	1. BOB. 2. SAY 3. ILL.	IMP.	(imp.)	DET.
Male Respondents	1.(SAY) (BOB.) (ILL.)	1. BOB. 2. SAY 3. ILL.	IMP.	(imp.)	(det.)
Female Respondents	1.(BOB.) (SAY) (ILL.)	1. BOB. 2. SAY 3. ILL.	(imp.)	(det.)	DET.
Age < 5	1. BOB 2.(SAY) (ILL.)	1. BOB 2. SAY 3. ILL.	(imp.)	(imp.)	(det.)
Age < 15	1. SAY 2. BOB 3. ILL.	1. BOB. 2. SAY 3. ILL.	IMP.	(det.)	(det.)
Age > 44	1.(ILL.) (BOB.) (SAY)	1.(BOB.) (ILL.) (SAY)	IMP.	(det.)	DET.
< 1 hour from closest facility	1.(SAY) (BOB.) (ILL.)	1. BOB. 2. SAY 3. ILL.	(det.)	(det.)	DET.
> 3 hours from closest facility	1.(BOB.) (SAY) (ILL.)	1.(BOB.) (SAY) (ILL.)	(det.)	(det.)	(det.)
> 2 hours from closest facility	1.(SAY) (BOB.) (ILL.)	1. BOB. 2. SAY 3. ILL.	(imp.)	(imp.)	(det.)
Poorest Quartile	1.(ILL.) (BOB.) (SAY)	1. BOB. 2.(SAY) (ILL.)	(imp.)	(det.)	DET.
Richest Quartile	1.(SAY) (BOB.) (ILL.)	1. BOB. 2. SAY 3. ILL.	IMP.	(det.)	DET.

* IMP. means an improvement in the probability of seeking health care at a public facility. DET. means a drop in the probability. Capital letters mean that the finding was statistically significant.

The percentage of pregnant women enrolled in a prenatal check-up program increased in Boboye and did not change much in Say and Illéla (*Graph 3-2*). Following the same methodology used in the health status and curative care-seeking sections, models were estimated for the probability of seeking care controlling for socioeconomic and facility characteristics variables. Models were estimated for the full sample and for population subsamples by distance from facility and income quartiles. The results are summarized in *Exhibit 3-3* and are based on regressions presented in *Exhibits A-23 through A-34*.

Full sample results show respondents in Say ranked first in the probability of enrolling in a prenatal check-up program in both baseline and follow-up surveys after controlling for socioeconomic and other variables. Respondents in Boboye were ranked second in both surveys. Turning to district-specific models, however, no statistical change over time in the probabilities for respondents in Say and Illéla was found. A positive and statistically significant change was found for Boboye.

Analysis of models on the population subsamples shows changes in one distance-from-facility sub-sample and one income quartile subsample. In the models on the population living more than two hours' walking distance from the closest public facility, the rankings changed, with Boboye going from second in the baseline survey to first in the follow-up. District-specific models explained the changes in the rankings. In this distance-from-facility subgroup, there was no statistically significant change in the districts of Say and Illéla, but an increase in the probability in Boboye. The findings were similar in the models for the richest income quartile. A possible explanation of the increased enrollment in prenatal programs in the social financing district is that the increase in seeking curative care at public facilities in Boboye may have led to an increase in the use of preventive care because individuals became more aware of the services available and more familiar with the facilities and the providers.

3.2   WILLINGNESS TO PAY

One of the most critical elements of any cost-recovery system is the willingness and ability of households to pay for improvements in the quality of care. In most cases, the approach to assessing the willingness to pay is through analyzing existing or past health care-seeking behavior and calculating or estimating a measure of price elasticity. A weakness in this approach is that it is usually difficult to get good measures of quality of care, such as drug availability.

Another approach being used to assess willingness to pay is the contingent valuation method. In contingent valuation, respondents are asked hypothetical questions about willingness to pay certain amounts of money for a clearly defined quality improvement. This method has been criticized for relying on hypothetical questions and not being based on real experience of the respondents.

	Baseline Survey	Follow-up Survey	Boboye over time	Say over time	Illéla over time
EXHIBIT 3-3 **ENROLLMENT IN PRENATAL CHECK-UP PROGRAMS**					
All respondents	1. SAY 2. BOB. 3. ILL.	1. SAY 2. BOB. 3. ILL.	IMP.	(imp.)	(det.)
< 1 hour from closest facility	1.(ILL.) (SAY) (BOB.)	1.(SAY) (BOB.) (ILL.)	(det.)	(det.)	DET.
> 3 hours from closest facility	1. BOB. 2. SAY 3. ILL.	1. BOB. 2. SAY 3. ILL.	(imp.)	(imp.)	(imp.)
> 2 hours from closest facility	1. SAY 2. BOB. 3. ILL.	1. BOB. 2. SAY 3. ILL.	IMP	(imp.)	(imp.)
Poorest quartile	1. BOB. 2.(SAY.) (ILL.)	1.(SAY) (BOB.) (ILL.)	(imp.)	(imp.)	(det.)
Richest quartile	1. SAY 2. BOB. 3. ILL.	1. BOB. 2. SAY 3. ILL.	IMP.	(det.)	(det.)

3. [If the answer to question 2 was *yes*, then the following question was asked.] How much are you prepared to pay for the public health facility to ensure that medicines are always available?

4. Are you prepared to contribute more than 200 FCFA once a year so that medicines are always available at the dispensary?

5. [If the answer to question 4 was *no*, then the following question was asked.] How much are you prepared to contribute per year so that medicines are always available at the dispensary?
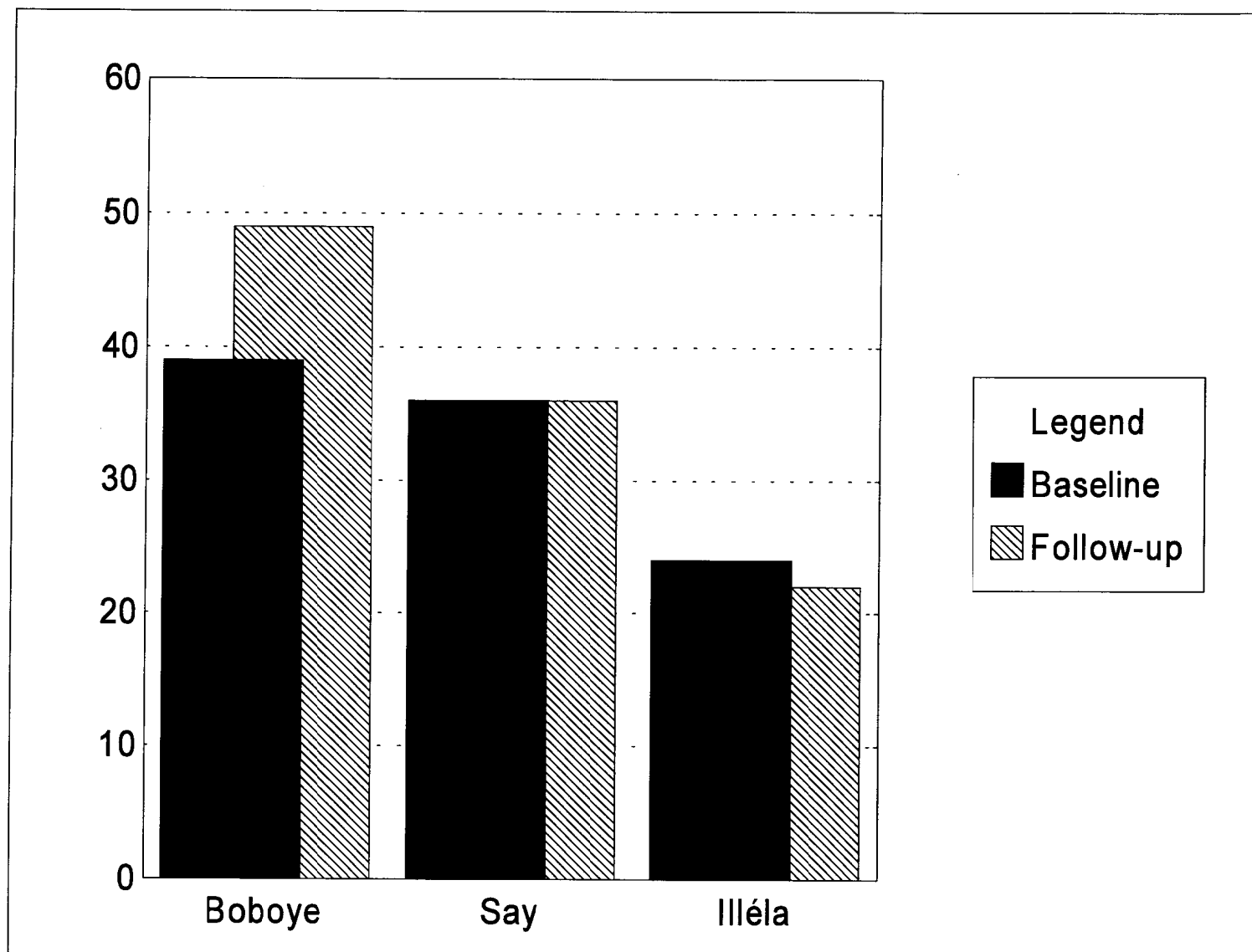
Graph 3-2: Enrollment in prenatal check-up programs

3.2.1 Prepared to Pay Each Time to Ensure Drug Availability

SUMMARY OF FINDINGS

- ⁃ Ninety-two percent of the respondents in the social financing district and 88 percent of the respondents in the fee per episode of illness district indicated a willingness to pay each time for care to ensure that drugs are available.
- ⁃ Little variation existed in the willingness to pay each time when the respondents were split by distance from public facilities, income quartiles, ethnicity, household size, education, or recent illnesses.
- ⁃ Men and married people are more willing to pay in both Boboye and Say.

Question one (Section 3.2) was asked of all respondents 15 years or older in Boboye and Say. Ninety percent of the respondents were prepared to pay. This can mean that the citizens are not interested in returning to the previous system. It should be noted, however, that the question conditions the answer on the promise of drug availability. A stronger endorsement of the new system would have come from a question that directly asks if the current system is preferred to the previous one.

Since question one asks about payment "each time," it is expected that the respondents in Boboye would have a higher percentage of willingness to pay than in Say, since their payment per incidence of illness is a fourth of the amount paid in Say. In Boboye, 92 percent of the respondents answered yes and 88 percent of the respondents in Say said yes. While the finding confirms our expectations, the large percentage of respondents willing to pay in Say is surprising and indicates a strong demand for drugs and medical care that does not correspond to the findings on actual demand.

If the respondents are stratified by distance from closest facility, distance does not play a big role in explaining variations in the response to this question in either district. In fact, respondents in Say living the farthest (three or more hours' walking time from the closest facility) had the highest percentage of willingness to pay, 90 percent, while the closest (less than one hour walking time) had the lowest percentage, 85 percent. This may be because the cost of transportation is a larger portion of the total expenditures related to the illness. The results in Boboye show those living closest having a slightly higher (but significantly different) percentage willing to pay, 94 percent, and those living farthest having a lower percentage willing to pay, 92 percent.

When the data was stratified by income quartile, willingness to pay does not vary much. In fact, the lowest quartile showed the highest willingness to pay in Boboye and the second highest in Say.

EXHIBIT 3-4 WILLINGNESS TO PAY IN SAY BY INCOME QUARTILE				
	Lowest Quartile	Low-Middle Quartile	Middle-High Quartile	Highest Quartile
YES	88	87	90	87
NO	12	13	10	13
Total	100	100	100	100

EXHIBIT 3-5 WILLINGNESS TO PAY IN BOBOYE BY INCOME QUARTILE				
	Lowest Quartile	Low-Middle Quartile	Middle-High Quartile	Highest Quartile
YES	94	90	92	91
NO	6	10	8	9
Total	100	100	100	100

When the data set is stratified by number of illnesses to respondent or to the children of the respondent in the last three months, little variation existed in the willingness to pay, especially in Boboye. In Say, the willingness to pay is higher for those respondents that have had more than one episode of illness than those that did not have an episode of illness.

EXHIBIT 3-6 WILLINGNESS TO PAY IN SAY BY ILLNESS IN THE LAST THREE MONTHS			
	No illness	One illness	More than one
YES	86	90	91
NO	14	10	9
Total	100	100	100

EXHIBIT 3-7 WILLINGNESS TO PAY IN BOBOYE BY ILLNESS IN THE LAST THREE MONTHS			
	No illness	One illness	More than one
YES	92	91	91
NO	8	9	9
Total	100	100	100

By examining the willingness to pay across gender, small differences were found in Say (89 percent of the men and 87 percent of the women) and larger differences in Boboye (96 percent for men and 88 percent in women.) Age does not play a role in the willingness to pay. No differences were found in willingness to pay between respondents aged 15 to 44 and over 45 years. Some variations in willingness to pay exist across marital status.

EXHIBIT 3-8 WILLINGNESS TO PAY IN SAY BY MARITAL STATUS				
	Single	Married	Widowed	Divorced
YES	82	90	77	91
NO	18	10	23	9
Total	100	100	100	100

EXHIBIT 3-9 WILLINGNESS TO PAY IN BOBOYE BY MARITAL STATUS				
	Single	Married	Widowed	Divorced
YES	91	93	79	88
NO	9	7	21	12
Total	100	100	100	100

Some variations also exist for position in the household (the heads of households have the highest willingness to pay and the parents of the head of household, the lowest.) Differences in ethnic origin show higher willingness to pay for Songhai and lower for Peulh and Zarma. No differences appear for those with formal education versus respondents with no formal education.

To see if there are statistically significant determinants of willingness to pay for drug availability, a limited dependent variable model (logit) of willingness to pay was estimated. In Say, the variables that had a statistically significant coefficient were: being ill in the last three months, the distance from the health facilities, the gender of the respondent, the age of the respondent, and the marital status of the respondent. The probability of choosing to continue to pay at the government facilities to guarantee the availability of drugs increases if: the respondent or a member of his or her family had fallen ill in the last three months; the respondent lives far from public facilities; the respondent is male; the respondent is young; or the respondent is married.

In Boboye, the variables with explanatory power are perception of drug availability, income, the gender of the respondent, and the marital status. The probability of choosing to continue to pay at the government facilities to guarantee the availability of drugs increases if there is a perception that drugs are usually available at the facilities, the income is high, or the respondent is male or married.

EXHIBIT 3-10 WILLINGNESS TO PAY AT FACILITIES RESULTS FROM A LOGIT MODEL (Model Results are in *Exhibit A-35*) (NO=0, YES=1)		
	SAY	BOBOYE
Illness in the last three months	Significant Positive	Not Significant
Perception of drug availability	Not Significant	Significant Positive
Income	Not Significant	Significant Negative
Household size	Not Significant	Not Significant
Walking time to closest government health facility	Significant Positive	Not Significant
Gender Female = 2 Male = 1	Significant Negative	Significant Negative
Age	Significant Negative	Not Significant
Married = 1 other = 0	Significant Positive	Significant Positive
Single = 1 other = 0	Not Significant	Not Significant
Ethnicity Zarma = 1 other = 0	Not Significant	Not Significant
Education	Not Significant	Not Significant

3.2.2   Prepared to Pay More Each Time to Ensure Drug Availability

The second question about willingness to pay suggested that the current payments are not enough to ensure drug availability and asked if respondents were willing to pay more. The question was meant to test the willingness to pay more at the facility, but the wording was not clear enough. This wording of the question does not affect respondents in Say, because they pay only at the facility, but may have confused respondents in Boboye.

SUMMARY OF FINDINGS

- ⌃ More than 60 percent of the respondents in each district indicated a willingness to pay more each time to ensure drug availability.
- ⌃ Little variation existed in the willingness to pay more when respondents were split by distance from public facilities, income quartiles, age, marital status, education, or recent illness.
- ⌃ Willingness to pay varies by gender, with men in both Boboye and Say willing to pay more to ensure drug availability.

Sixty-four percent of the respondents indicated a willingness to pay more than they do already. Twenty-six percent indicated that they are not willing to pay more, and 10 percent did not take a position. Respondents in Say indicate a higher willingness to pay more, even though they pay a higher rate per episode of illness than residents of Boboye.

EXHIBIT 3-11 WILLINGNESS TO PAY MORE BY DISTRICT		
	SAY	BOBOYE
YES	66	62
D.N.A.	12	8
NO	22	30
Total	100	100

If the data is stratified by distance from the closest facility, distance does not play a role in either district in explaining variations in the response to the second question.

EXHIBIT 3-12 WILLINGNESS TO PAY MORE IN SAY BY DISTANCE				
	< 1 hour	1 to 2 hours	2 to 3 hours	3+ hours
YES	63	67	67	67
D.N.A.	15	14	13	25
NO	22	19	20	8
Total	100	100	100	100

EXHIBIT 3-13 WILLINGNESS TO PAY MORE IN BOBOYE BY DISTANCE				
	< 1 hour	1 to 2 hours	2 to 3 hours	3+ hours
YES	64	61	62	63
D.N.A.	6	10	8	29
NO	30	29	30	8
Total	100	100	100	100

When the data set is stratified by income quartile, willingness to pay more does not vary much. The highest quartile showed the highest willingness to pay more in both districts.

EXHIBIT 3-14 WILLINGNESS TO PAY MORE IN SAY BY INCOME QUARTILE				
	Lowest Quartile	Low-Middle Quartile	Middle-High Quartile	Highest Quartile
YES	66	63	66	70
D.N.A.	12	13	10	13
NO	22	24	24	17
Total	100	100	100	100

EXHIBIT 3-15 WILLINGNESS TO PAY MORE IN BOBOYE BY INCOME QUARTILE				
	Lowest Quartile	Low-Middle Quartile	Middle-High Quartile	Highest Quartile
YES	62	62	60	65
D.N.A.	6	10	8	9
NO	32	28	32	26
Total	100	100	100	100

Those respondents who visited the facilities in the past three months indicated that the experience of having been to the facilities increases the willingness to pay more, especially in Say. This may be due to differences in drug availability in facilities in Say and Boboye.

EXHIBIT 3-16 WILLINGNESS TO PAY MORE IN SAY BY PAST VISITS TO FACILITIES		
	Visited facility	Did not visit
YES	71	65
D.N.A.	9	13
NO	20	22
Total	100	100

EXHIBIT 3-17 WILLINGNESS TO PAY MORE IN BOBOYE BY PAST VISITS TO FACILITIES		
	Visited facility	Did not visit
YES	64	61
D.N.A.	7	9
NO	29	30
Total	100	100

Comparing willingness to pay more across gender shows that the percentage of male respondents who are willing to pay more is larger than the percentage of female respondents in both districts (69 percent of males and 63 percent of females in Say; 70 percent of males and 56 percent of females in Boboye). By looking at age groups, little difference exists in the willingness to pay more between respondents aged 15 to 44 and above 45 years. Some variations in willingness to pay exist across marital status.

EXHIBIT 3-18 WILLINGNESS TO PAY MORE IN SAY BY MARITAL STATUS				
	Single	Married	Widowed	Divorced
YES	58	68	57	74
D.N.A.	18	10	23	9
NO	24	22	20	17
Total	100	100	100	100

EXHIBIT 3-19 WILLINGNESS TO PAY MORE IN BOBOYE BY MARITAL STATUS				
	Single	Married	Widowed	Divorced
YES	67	62	51	55
D.N.A.	9	7	21	12
NO	24	31	28	33
Total	100	100	100	100

Some variations also exist for position in the household (the heads of households have the highest willingness to pay and the parents of the head of household the lowest). Differences in ethnic origin show higher willingness to pay for Songhai and Hawsa and lower for Peulh and Zarma. Little difference appears for those with formal education versus respondents with no formal education in Say. In Boboye, 69 percent of respondents with formal education and 61 percent of respondents with no formal education are willing to pay more.

A limited dependent variable model (logit) of willingness to pay more at the facility was estimated. In Say, the variables that had a statistically significant coefficient were family income, gender of the respondent, and ethnicity of the respondent. The probability of choosing to pay more at the government facilities to guarantee the availability of drugs increases with level of income, for male respondents, and for Zarma respondents. In Boboye, the only variable with explanatory power is gender. The probability of choosing to pay more at the government facilities to guarantee the availability of drugs increases if the respondent is male.

3.2.3   Amount Prepared to Pay More Each Time

The third question asked about willingness to pay focuses on how much more respondents are prepared to pay each time they visit the facility for treatment. At the time of the survey, adults paid 200 FCFA in Say and 50 FCFA in Boboye. The average amount of FCFA the respondents are prepared to pay (instead of the current level of payment) was 310 in Say and 121 in Boboye. In Say, the range was from 200 to 4,500 FCFA. The range in Boboye was from 50 to 1,000 FCFA.

In answering the question about paying more, two decisions are made. First, the respondent decides whether to pay more or not, and second, how much to pay if he or she decides to pay more. This means that the dependent variable is not normally distributed but censored, with a lower limit of 200 for Say and 50 for Boboye. The distribution of the dependent variable suggests a tobit model to explain variations in both decisions. Another approach is to separate the decisions, and estimate the decision to pay more with logit or probit, and the decision on the amount with OLS.

The logit model on the decision to pay more is estimated in the previous section. An OLS model for willingness to pay, conditioned on the willingness to pay more at the facility, was estimated. In Say, the statistically significant variables are income, gender, and ethnicity. The amount of money that respondents are prepared to pay increases with income, with male respondents, or with respondents who are not Zarma. In Boboye, the statistically significant variables are the perception of drug availability, income, household size, distance from closest facility, and gender. The amount of money that respondents are prepared to pay increases with negative perceptions of drug availability, higher income, increasing household size, distance from the public facilities, and male respondents.

A tobit model for willingness to pay is also estimated. In Say, the amount prepared to pay increases with income, male respondents, married respondents, and respondents who are Zarma. In Boboye, the amount prepared to pay increases if the education level is high or the respondent male.

EXHIBIT 3-20 WILLINGNESS TO PAY MORE EACH TIME AT THE FACILITIES RESULTS FROM A LOGIT MODEL (Model Results are in *Exhibit A-36*) (NO=0, YES=1)		
	SAY	BOBOYE
Illness in the last three months	Not Significant	Not Significant
Perception of drug availability	Not Significant	Not Significant
Income	Significant Positive	Not Significant
Household size	Not Significant	Not Significant
Walking time to closest government health facility	Not Significant	Not Significant
Gender Female = 2 Male = 1	Significant Negative	Significant Negative
Age	Not Significant	Not Significant
Married = 1 other = 0	Not Significant	Not Significant
Single = 1 other = 0	Not Significant	Not Significant
Ethnicity Zarma = 1 other = 0	Significant Positive	Not Significant
Education	Not Significant	Not Significant

EXHIBIT 3-21 AMOUNT PREPARED TO PAY MORE EACH TIME AT THE FACILITY Results from an OLS model (Model Results are in *Exhibit A-37*)		
	SAY	BOBOYE
Illness in the last three months	Not Significant	Not Significant
Perception of drug availability	Not Significant	Significant Negative
Income	Significant Positive	Significant Positive
Household size	Not Significant	Significant Positive
Walking time to closest government health facility	Significant Negative	Significant Positive
Gender Female = 2 Male = 1	Significant Negative	Significant Negative
Age	Not Significant	Not Significant
Married = 1 other = 0	Not Significant	Not Significant
Single = 1 other = 0	Not Significant	Not Significant
Ethnicity Zarma = 1 other = 0	Significant Negative	Not Significant
Education	Not Significant	Not Significant

	SAY	BOBOYE
EXHIBIT 3-22 **AMOUNT PREPARED TO PAY ADDITIONAL EACH TIME AT THE FACILITY** Results from a Tobit model (Model Results are in *Exhibit A-38*)		
Illness in the last three months	Not Significant	Not Significant
Perception of drug availability	Not Significant	Not Significant
Income	Significant Positive	Not Significant
Household size	Significant Positive	Not Significant
Walking time to closest government health facility	Not Significant	Not Significant
Gender Female = 2 Male = 1	Significant Negative	Significant Negative
Age	Not Significant	Not Significant
Married = 1 other = 0	Not Significant	Not Significant
Single = 1 other = 0	Significant Negative	Not Significant
Ethnicity Zarma = 1 other = 0	Significant Positive	Not Significant
Education	Not Significant	Significant Positive

3.2.4   Prepared to Pay More in Taxes

The question about the willingness to pay more in taxes was asked in both districts even though it describes the system in Boboye. Only results from Boboye will be reported. Thirty-five percent of the respondents said they are willing to pay more, 49 percent said they are not willing, and 15 percent did not answer. Respondents living closest to the facilities had the highest percentage willing to pay more (38 percent) and those living farthest had the lowest percentage (33 percent).

Stratifying by income quartile shows that the respondents in the highest level are more willing to pay more than other quartiles (40 percent). There is no clear trend in willingness to pay more among groups with different illness incidence in the last three months. Respondents that visited a facility in the last three months are more willing to pay more than respondents that have not visited a facility (38 to 34 percent). Male respondents were more willing to pay more than female (42 to 30 percent). Younger respondents (15-44 years old) were more willing to pay more than older ones (37 to 30 percent). Single respondents were more willing to pay more than married, widowed, or divorced (42, 34, 21, and 36 percent respectively). The parents of the head of the household or the spouse were the least willing to pay more than any other group (15 percent as opposed to 40 percent for head of household). There are differences in the willingness to pay more by ethnic origin.

EXHIBIT 3-23 WILLINGNESS TO PAY MORE IN TAXES BY ETHNIC GROUP				
	Zarma	Hawsa	Peulh	Sonrhi
YES	35	51	26	41
NO	49	30	53	49
D.N.A.	16	19	21	10
Total	100	100	100	100

Formal education plays a role in the willingness to pay more, with those with some formal education indicating a greater willingness to pay more taxes than those without it.

EXHIBIT 3-24 WILLINGNESS TO PAY MORE IN TAXES BY EDUCATION		
	No formal education	Some formal education
YES	34	50
NO	50	37
D.N.A.	16	13
Total	100	100

A limited dependent variable model (logit) of willingness to pay more in taxes was estimated. Four variables have some explanatory power. The probability of choosing to pay more in taxes to guarantee the availability of drugs increases the higher the income, for male respondents, the younger the respondent, and the higher the level of education.

EXHIBIT 3-25 WILLINGNESS TO PAY MORE IN TAXES Results from a logit model (Model Results are in *Exhibit A-39*) (NO=0, YES=1)	
	BOBOYE
Illness in the last three months	Not Significant
Perception of drug availability	Not Significant
Income	Significant Positive
Household size	Not Significant
Walking time to closest government health facility	Not Significant
Gender Female = 2 Male = 1	Significant Negative
Age	Significant Negative
Married = 1 other = 0	Not Significant
Single = 1 other = 0	Not Significant
Ethnicity Zarma = 1 other = 0	Not Significant
Education	Significant Positive

3.2.5 Amount Prepared to Pay in Taxes

The last of the willingness to pay questions was:

How much are you prepared to contribute per year so that medicines are always available at the dispensary?

Like the willingness to pay question in Section 3.2.3, this question produces a variable that is left censored. Note that no taxes exist in Say and adults pay 200 FCFA annual tax in Boboye. The average amount of FCFA the respondents were prepared to pay was 316 in Say and 313 in Boboye. In Say, the range was from 200 to 3,000 FCFA. The range in Boboye was from 25 to 1,000 FCFA.

The results from the OLS model for willingness to pay in taxes appear in *Exhibit 3-26*. In Say, the statistically significant variables are income, gender, and education. The amount of money that respondents are prepared to pay increases with income, with male respondents, and with education. In Boboye, the statistically significant variables are income, household size, and gender. The amount of money that respondents are prepared to pay increases with income, household size, and male respondents.

A tobit model for willingness to pay is also estimated (***Exhibit 3-27***). In Say, the amount respondents are prepared to pay increases with the negative perception of drug availability, if the respondent is male, the younger the respondent, and if the respondent is Zarma. In Boboye, the amount the respondent is prepared to pay increases with income, if the respondent is male, the younger the respondent, and with education level.

EXHIBIT 3-26 AMOUNT PREPARED TO PAY IN TAXES (OLS) Results from an OLS Model (Model Results are in ***Exhibit A-41***)		
	SAY	BOBOYE
Illness in the last three months	Not Significant	Not Significant
Perception of drug availability	Not Significant	Not Significant
Income	Significant Positive	Significant Positive
Household size	Not Significant	Significant Positive
Walking time to closest government health facility	Not Positive	Not Positive
Gender Female = 2 Male = 1	Significant Negative	Significant Negative
Age	Not Significant	Not Significant
Married = 1 other = 0	Not Significant	Not Significant
Single = 1 other = 0	Not Significant	Not Significant
Ethnicity Zarma = 1 other = 0	Not Significant	Not Significant
Education	Significant Positive	Not Significant

EXHIBIT 3-27 AMOUNT PREPARED TO PAY IN TAXES (Tobit) Results from a Tobit model (Model Results are in *Exhibit A-41*)		
	SAY	BOBOYE
Illness in the last three months	Not Significant	Not Significant
Perception of drug availability	Significant Negative	Not Significant
Income	Not Significant	Significant Positive
Household size	Not Significant	Not Significant
Walking time to closest government health facility	Significant Positive	Not Significant
Gender Female = 2 Male = 1	Significant Negative	Significant Negative
Age	Significant Negative	Significant Negative
Married = 1 other = 0	Not Significant	Not Significant
Single = 1 other = 0	Significant Negative	Not Significant
Ethnicity Zarma = 1 other = 0	Significant Positive	Not Significant
Education	Not Significant	Significant Positive

3.3   CHOICE OF SYSTEM

Many interesting questions arise as to the population's preferences of a payment method. One question that is partially answered in the earlier analysis is whether the population prefers the new systems to the old free system with quality problems. It is clear that the population was dissatisfied with the conditions of health care delivery before the interventions in Boboye and Say. This can be seen in the overwhelming majority who answered question one by saying that they are willing to pay for drug improvements. The answers to that question and to questions that followed about willingness to pay more can be interpreted to say that, given a choice between the current cost-recovery systems and the free system, most would choose the current system.

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SUMMARY OF FINDINGS

▲ Eighty-four percent of respondents in each of the two cost-recovery districts prefer the social financing method of payment to paying a fee per episode of illness.

▲ Respondents living farthest from public facilities and respondents from the poorest expenditure quartile were as likely to choose the social financing method as others living closer.

▲ The reasons cited most often for preferring the social financing method were that it was cheaper and easier to finance.

Another interesting question is about the choice between the direct payment system in Say and the indirect (tax and co-payment) system in Boboye. In the module on willingness to pay, the follow-up survey asked all respondents aged 15 or older in Boboye and Say the following question:

▲ The adults in your district are being asked to choose between the following two methods of payment to ensure that the medicines are available at the dispensary closest to you:

△ The first method of payment: Each adult is asked to contribute 200 FCFA once a year. In addition, they are asked to pay 50 FCFA to the dispensary each time they become sick.

△ The second method of payment: Each time someone becomes sick, 200 FCFA are paid to the dispensary.

Which of the two methods of payment do you prefer?

A set of questions was also asked about the reasons why respondents chose one system and rejected the other. The next section will address the stated choice by respondents. Section 3.3.2 will look at the reasons given for the choice.

3.3.1 Preference of a Payment Method

Eighty-four percent of the respondents chose the first method, 7 percent chose the second method, 6 percent were undecided, and 2 percent did not answer. This pattern of choice was almost identical in Say and Boboye.

EXHIBIT 3-28 CHOICE OF METHOD OF PAYMENT		
	SAY	BOBOYE
Tax + Co-payment	84	84
Fee for service	7	8
Undecided	7	6
D.N.A.	2	2
Total	100	100

Examining preference of payment method by distance from closest facility shows that in Say, the percentage of respondents that chose the second method was higher for those living the closest. In Boboye, the highest percentage of respondents choosing the second method were those living farthest. The Boboye finding indicates that the tax and co-payment method may be inequitable for the people living far from the facilities and therefore less likely to take advantage of them. The difference between the percentages of the group living closest and farthest is not big, though. The finding in Say is counter-intuitive. It shows that the percentage choosing the tax system is highest for the group living more than two hours' walk from the closest facility.

EXHIBIT 3-29 CHOICE OF METHOD OF PAYMENT IN SAY BY DISTANCE FROM CLOSEST FACILITY				
	< 1 hour	1 to 2 hours	2 to 3 hours	3+ hours
Tax + Co-payment	75	85	87	87
Fee for service	16	6	4	4
Undecided	8	8	5	7
D.N.A.	1	1	3	2
Total	100	100	100	100

EXHIBIT 3-30 CHOICE OF METHOD OF PAYMENT IN BOBOYE BY DISTANCE FROM CLOSEST FACILITY				
	< 1 hour	1 to 2 hours	2 to 3 hours	3+ hours
Tax + Co-payment	83	86	88	81
Fee for service	8	7	4	12
Undecided	7	4	6	6
D.N.A.	2	3	2	1
Total	100	100	100	100

When the data set is stratified by income quartile, the choice of payment method is similar. The highest quartile in both districts had the highest percentage choice of the second method (10 percent).

EXHIBIT 3-31 CHOICE OF PAYMENT METHOD IN SAY BY INCOME QUARTILE				
	Lowest Quartile	Low-Middle Quartile	Middle-High Quartile	Highest Quartile
Tax + Co-payment	87	83	86	81
Fee for service	3	7	6	10
Undecided	8	7	6	6
D.N.A.	2	3	2	3
Total	100	100	100	100

EXHIBIT 3-32 CHOICE OF PAYMENT METHOD IN BOBOYE BY INCOME QUARTILE				
	Lowest Quartile	Low-Middle Quartile	Middle-High Quartile	Highest Quartile
Tax + Co-payment	85	86	83	84
Fee for service	7	5	8	11
Undecided	5	7	7	4
D.N.A.	3	2	2	1
Total	100	100	100	100

A study of the choice of payment systems by illness incidence in the recent past shows that in Say, the percentage of respondents choosing the fee per episode system (same as the district) was lowest for those with two or more episodes of illness. In Boboye, the percentages were very similar across illness incidence groups.

EXHIBIT 3-33 CHOICE OF PAYMENT METHOD IN SAY BY ILLNESS INCIDENCE			
	No illness	One illness	More than one
Tax + Co-payment	82	85	88
Fee for service	7	7	4
Undecided	8	6	6
D.N.A.	2	2	2
Total	100	100	100

EXHIBIT 3-34 CHOICE OF PAYMENT METHOD IN BOBOYE BY ILLNESS INCIDENCE			
	No illness	One illness	More than one
Tax + Co-payment	85	84	85
Fee for service	7	9	7
Undecided	6	5	6
D.N.A.	2	2	2
Total	100	100	100

Respondents that had visited a facility in the past three months in Say were twice as likely to choose the fee per episode method as those that did not visit a facility (11 to 5.5 percent). Gender of the respondent does not play a large role in the choice of system (larger percentages of women were undecided than men in both districts.) Age of respondents does not play a major role in the choice of the system. Some variations in willingness to pay exist across marital status.

EXHIBIT 3-35 CHOICE OF PAYMENT METHOD IN SAY BY MARITAL STATUS				
	Single	Married	Widowed	Divorced
Tax + Co-payment	78	87	76	78
Fee for service	7	6	5	13
Undecided	10	5	15	4
D.N.A.	5	1	4	4
Total	100	100	100	100

EXHIBIT 3-36 CHOICE OF PAYMENT METHOD IN BOBOYE BY MARITAL STATUS				
	Single	Married	Widowed	Divorced
Tax + Co-payment	86	86	64	81
Fee for service	8	8	3	9
Undecided	4	5	26	6
D.N.A.	1	2	7	3
Total	100	100	100	100

Finally, respondents with formal education have a higher percentage choice of the fee per episode method than those with no formal education, especially in Say.

A limited dependent variable model (logit) of the choice of payment method is estimated. In Say, the variables that had a statistically significant coefficient were recent illness history, perception of drug availability, income, and the walking time to the closest facility. The probability of choosing the tax and co-payment system increases with more recent illness in the family, the negative perception of drug availability, the lower the income, and the walking distance from the closest facility. In Boboye, the two variables with explanatory power are gender and walking time to closest facility. The probability of choosing the tax and co-payment system increases if the respondent is male.

	SAY	BOBOYE
EXHIBIT 3-37 **CHOICE OF PAYMENT METHOD** Results from a logit model (Model Results are in ***Exhibit A-42***) (Fee per episode of illness = 0, Tax and co-payment = 1)		
Illness in the last three months	Significant Positive	Not Significant
Perception of drug availability	Significant Negative	Not Significant
Income	Significant Positive	Not Significant
Household size	Not Significant	Not Significant
Walking time to closest government health facility	Significant Positive	Significant Negative
Gender Female = 2 Male = 1	Not Significant	Significant Positive
Age	Not Significant	Not Significant
Married = 1 other = 0	Not Significant	Not Significant
Single = 1 other = 0	Not Significant	Not Significant
Ethnicity Zarma = 1 other = 0	Not Significant	Not Significant
Education	Not Significant	Not Significant

3.3.2   Reasons for Choosing a Payment Method

Each respondent was asked to explain his or her choice of payment method by providing reasons he or she chose one method and did not choose the other method. The majority chose the tax and co-payment method, and gave two reasons: it costs less and is easier to finance. In the tax district, Boboye, more respondents reasoned that the method costs less, and in Say, most respondents made their choice due to ease of financing.

When respondents were asked why they did not choose the fee per episode method, the two districts had similar answers, with the majority citing lack of resources.

EXHIBIT 3-38		
REASONS FOR CHOOSING THE TAX AND CO-PAYMENT METHOD		
	BOBOYE	SAY
Costs less	1003 56%	398 26%
Easier to finance	657 37%	1006 62%
Other	113 6%	85 7%
Total	1773 99%	1489 95%

EXHIBIT 3-39		
REASONS FOR NOT CHOOSING THE FEE FOR SERVICE METHOD		
	BOBOYE	SAY
More expensive than the other method	306 17%	194 12%
Lack resources	978 55%	951 61%
Difficult to have 200 FCFA each time	457 26%	302 19%
Other	33 2%	51 3%
Total	1774 99%	1492 96%

The minority of respondents that prefer the fee per episode method of payment were also asked for reasons for choosing that system. The two reasons given were that the respondents were more sure that the drug would be available and that the system was simpler.

When asked for the reasons for not choosing the tax method, respondents indicated an uneasiness with the correct use of the money. Another reason given was that some respondents felt that they would be throwing the money away if they did not get sick.

EXHIBIT 3-40 REASONS FOR CHOOSING THE FEE FOR SERVICE METHOD		
	BOBOYE	SAY
You are sure to get the drugs	81 50%	52 42%
Simpler method	18 11%	29 24%
Other	59 36%	30 24%
Total	158 96%	111 90%

EXHIBIT 3-41 REASONS FOR NOT CHOOSING THE TAX AND CO-PAYMENT METHOD		
	BOBOYE	SAY
Not sure that the money will be used correctly	76 47%	61 50%
May not get sick	23 14%	12 10%
Other	58 36%	38 31%
Total	167 97%	111 90%

4.0 SUMMARY AND CONCLUSIONS

This report analyzed the impact of the cost-recovery interventions in Boboye and Say districts. It focused on two categories of questions: (1) changes in health care-seeking behavior and (2) willingness to pay and preferences of the population. Special attention was given to vulnerable population groups and to the geographic location of facilities relative to the villages studied.

The probability of seeking treatment at a public facility when ill increased in Boboye, did not change in Say, and decreased in Illéla. This result did not change when regression models that controlled for socioeconomic and facility specific variables were estimated. Repeating the analysis for population subgroups showed some different results. For females, there was no statistically significant change in the two cost-recovery districts, but a decrease in the control district. Children under 15 were more likely to be taken to a public facility in the social financing district but not in the other two districts. The elderly (45 years or older) were more likely to go to the public facilities in the social financing district and less likely in the control district. The poorest quartile were less likely to go to the public facility in the control district.

The increase in utilization of health facilities under the social financing method over the fee per episode of illness method can be explained with economic theory. The fact that the patients in Boboye faced lower prices than those in Say (50 FCFA in Boboye and 200 FCFA) seems to have offset the decrease in demand due to lower incomes from taxing in Boboye. This point is illustrated in *Graph 4-1*. Before either of the interventions, the demand for health services at public facilities in a given district is D1, the price is P1, and the number of visits is Q1. With the improved quality, the demand shifts outward to QB in Boboye and DS in Say. The demand shifts less in Boboye because of the decrease in income due to the tax. But since the price for the first visit is lower in Boboye (PB), the quantity of visits demanded is higher (QB).

The results for preventive care were similar to those for curative care. The probability of pregnant women being enrolled in a prenatal check-up program was used as a proxy for preventive care. There was a 10 percent increase in the enrollment rates for Boboye and little change in the other districts. Regression models confirmed this result, after controlling for socioeconomic and facility-specific variables.

The results for the first category of questions, changes in seeking behavior, indicate that the social financing method of payment produced positive results in terms of this behavior for both curative and preventive services. This is true of the population as a whole, as well as, the vulnerable population groups. It is also clear that equity concerns with respect to income groups, gender, age groups, and geographic distances from public facilities were not warranted. It would be difficult to prove that it is the increase in health care-seeking behavior that has brought about the improvement in health status, but it may be a factor.
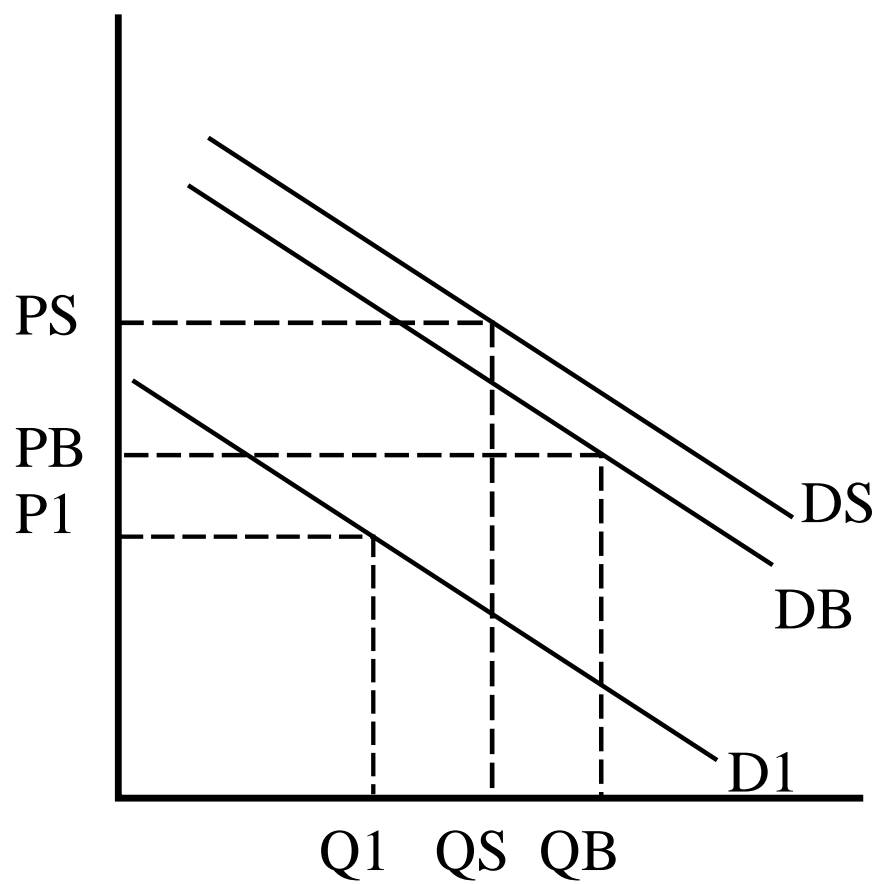
Graph 4-1   Price per Visit (Including Fee Paid at Facility, Travel Costs, and Waiting Costs)

Turning next to the second category of questions—preferences and willingness to pay—it is very clear that the overwhelming majority of the people surveyed prefer the cost-recovery and quality improvement interventions to the previous situations. This is apparent from their response to questions about willingness to pay and to pay more for drug availability. Even the poorest quartile and the villages farthest from the facility showed a clear preference for the interventions.

Finally, with respect to the choice between the two payment methods, the majority in both intervention districts (84 percent) prefer the social financing method. Reasons given for the choices were that it cost less and it was easier to finance.

Based on these findings, it is clear that the social financing payment method has resulted in better outcomes than the fee per episode of illness payment method and better than the no-cost-recovery option represented by the control district. It is clear that the fee-per-episode district has resulted in better outcomes than the control district. In the social financing district, seeking both preventive and curative care was higher than the other two districts, and respondents in both cost-recovery districts (Boboye and Say) overwhelmingly prefer the social financing method to the fee per episode method.

APPENDIX

	BASELINE	FOLLOW-UP
EXHIBIT A-1 **HEALTH SEEKING AT PUBLIC FACILITY (ACROSS DISTRICTS)** **LOGIT (NO=0, YES=1)** (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)		
Boboye dummy Boboye = 1 Other = 0	0.349 1.417 1.537	1.422 4.146 5.723
Say dummy Say = 1 Other = 0	0.350 1.419 1.484	0.915 2.498 3.754
Per capita monthly expenditures	0.00003 1.000 1.237	0.00006 1.000 3.084
Gender Female = 2 Male = 1	0.007 1.007 0.060	0.012 1.012 0.101
Age1 dummy Less than 15 = 1 Other = 0	-0.212 0.808 -0.971	0.507 1.661 1.901
Age2 dummy 15 - 44 = 1 Other = 0	0.271 1.311 1.475	0.247 1.281 1.219
Married Married = 1 Other = 0	-0.374 0.687 -1.777	0.124 1.133 0.489
Single Single = 1 Other = 0	-0.526 0.590 -2.637	-0.067 0.934 -0.335
Walking time to closest government health facility	-0.013 0.986 -13.651	-0.014 0.986 -12.750
Tribal dummy Hawsa = 1 Other = 0	0.327 1.387 1.500	0.398 1.488 1.757
Zarma dummy Zarma = 1 Other = 0	0.506 1.658 3.038	0.068 1.070 0.405
Education	0.068 1.070 1.729	0.036 1.036 0.802
No. of obs. Log-likelihood Pseudo R-SQ	2,818 -936.22 0.150	2,697 -860.79 0.165

	BOBOYE	SAY	ILLÉLA
EXHIBIT A-2 **HEALTH SEEKING AT PUBLIC FACILITY (DISTRICT-SPECIFIC MODELS)** **LOGIT (NO=0, YES=1)** (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)			
Year dummy 1993 = 1 1992 = 0	0.390 1.478 2.316	0.030 1.031 0.169	-0.568 0.566 -3.073
Drug Availability	-0.118 0.888 -0.787	-0.109 0.896 -0.620	-0.813 0.443 -3.919
Per capita monthly expenditures	0.00006 1.000 2.344	0.00005 1.000 1.932	0.00002 1.000 0.625
Gender Female = 2 Male = 1	0.009 1.009 0.078	0.118 1.126 0.699	-0.069 0.933 -0.377
Age1 dummy Less than 15 = 1 Other = 0	0.027 1.027 0.114	0.582 1.790 1.646	-0.069 0.932 -0.207
Age2 dummy 15 - 44 = 1 Other = 0	0.058 1.060 0.315	0.742 2.101 2.505	0.215 1.240 0.762
Married Married = 1 Other = 0	-0.146 0.863 -0.623	-0.053 0.948 -0.162	-0.247 0.781 -0.800
Single Single = 1 Other = 0	-0.368 0.691 -1.904	-0.238 0.788 -0.835	-0.338 0.712 -1.112
Walking time to closest government health facility	-0.013 0.986 -12.308	-0.014 0.985 -9.322	-0.013 0.987 -9.974
Hawsa dummy Hawsa = 1 other = 0	0.166 1.185 0.615	0.345 1.412 1.228	0.646 1.908 2.186
Zarma dummy Zarma = 1 other = 0	0.232 1.262 1.511	0.314 1.368 1.568	-0.084 0.919 -0.074
Education	0.012 1.012 0.299	0.041 1.041 0.798	0.208 1.232 2.958
No. of obs. Log-likelihood Pseudo R-SQ	2,243 -892.31 0.125	1,461 -450.41 0.174	1,811 -445.11 0.170

	BASELINE	FOLLOW-UP
EXHIBIT A-3 HEALTH SEEKING AT PUBLIC FACILITY (ACROSS DISTRICTS): MALES LOGIT (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)		
Boboye dummy Boboye = 1 Other = 0	0.379 1.460 1.080	1.270 3.562 3.466
Say dummy Say = 1 Other = 0	0.470 1.601 1.288	0.706 2.027 1.961
Per capita monthly expenditures	0.00001 1.000 0.545	0.00008 1.000 3.151
Age1 dummy Less than 15 = 1 Other = 0	-0.089 0.914 -0.202	___
Age2 dummy 15 - 44 = 1 Other = 0	0.086 1.090 0.290	0.267 1.307 0.576
Married Married = 1 Other = 0	-0.113 0.892 -0.269	0.161 1.175 0.525
Single Single = 1 Other = 0	-0.190 0.826 -0.612	0.0005 1.000 0.001
Walking time to closest government health facility	-0.011 0.988 -8.338	0.155 1.167 0.532
Tribal dummy Hawsa = 1 Other = 0	0.779 2.179 2.218	-0.009 0.990 -7.132
Zarma dummy Zarma = 1 Other = 0	0.992 2.697 3.852	0.457 1.580 1.349
Education	0.030 1.030 0.542	0.054 1.055 0.907
No. of obs. Log-likelihood Pseudo R-SQ	1,323 -438.94 0.131	1,292 -420.84 0.115

	BOBOYE	SAY	ILLÉLA
EXHIBIT A-4 **HEALTH SEEKING AT PUBLIC FACILITY (DISTRICT-SPECIFIC MODELS): MALES** **LOGIT (NO=0, YES=1)** (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)			
Year dummy 1993 = 1 1992 = 0	0.515 1.674 2.052	0.074 1.076 0.280	-0.382 0.682 -1.462
Drug Availability	-0.396 0.672 -1.779	-0.182 0.833 -0.728	-0.773 0.461 -2.645
Per capita monthly expenditures	0.00008 1.000 2.144	0.00008 1.000 1.836	0.00002 1.000 0.540
Age1 dummy Less than 15 = 1 Other = 0	0.023 1.023 0.050	1.063 2.895 1.578	-0.187 0.828 -0.297
Age2 dummy 15 - 44 = 1 Other = 0	-0.234 0.790 -0.780	0.935 2.548 1.920	0.213 1.238 0.501
Married Married = 1 Other = 0	0.127 1.135 -0.281	0.372 1.450 0.635	-0.464 0.628 -0.789
Single Single = 1 Other = 0	0.011 1.011 0.039	0.137 1.147 0.326	-0.302 0.738 -0.649
Walking time to closest government health facility	-0.011 0.988 -7.327	-0.008 0.991 -4.670	-0.010 0.989 -5.947
Hawsa dummy Hawsa = 1 other = 0	-0.142 0.866 -0.344	0.861 2.367 1.985	1.579 4.852 2.589
Zarma dummy Zarma = 1 other = 0	0.228 1.257 1.009	0.733 2.082 2.693	1.818 6.163 1.322
Education	-0.017 0.982 -0.299	0.108 1.114 1.506	0.095 1.100 0.966
No. of obs. Log-likelihood Pseudo R-SQ	1,009 -405.14 0.101	754 -221.67 0.145	852 -224.07 0.133

	BASELINE	FOLLOW-UP
EXHIBIT A-5 HEALTH SEEKING AT PUBLIC FACILITIES (ACROSS DISTRICTS): FEMALES LOGIT (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)		
Boboye dummy Boboye = 1 Other = 0	0.366 1.442 1.216	1.583 4.872 4.574
Say dummy Say = 1 Other = 0	0.288 1.334 0.918	1.138 3.120 3.342
Per capita monthly expenditures	0.00004 1.000 1.241	0.00004 1.000 1.221
Age1 dummy Less than 15 = 1 Other = 0	-0.165 0.847 -0.607	0.789 2.202 2.280
Age2 dummy 15 - 44 = 1 Other = 0	0.529 1.697 1.921	0.345 1.412 1.135
Married Married = 1 Other = 0	-0.567 0.567 -2.066	0.191 1.211 0.565
Single Single = 1 Other = 0	-0.724 0.484 -2.584	-0.330 0.718 -1.137
Walking time to closest government health facility	-0.015 0.984 -10.635	-0.019 0.980 -10.628
Tribal dummy Hawsa = 1 Other = 0	-0.002 0.997 -0.009	0.329 1.390 1.063
Zarma dummy Zarma = 1 Other = 0	0.150 1.162 0.666	0.143 1.153 0.609
Education	0.114 1.121 2.004	0.032 1.033 0.476
No. of obs. Log-likelihood Pseudo R-SQ	1,494 -488.95 0.1790	1,405 -427.63 0.229

		EXHIBIT A-6	
	HEALTH SEEKING AT PUBLIC FACILITIES (DISTRICT-SPECIFIC MODELS): FEMALES		
		LOGIT (NO=0, YES=1)	
	(The first number is the coefficient, the second is the odds ratio,		
	and the third line is the t-statistic)		
	BOBOYE	SAY	ILLÉLA
Year dummy 1993 = 1 1992 = 0	0.269 1.309 1.171	-0.014 0.985 -0.057	-0.758 0.468 -2.782
Drug Availability	0.088 1.092 0.427	-0.006 0.993 -0.026	-0.911 0.401 -2.986
Per capita monthly expenditures	0.00004 1.000 1.262	0.00004 1.000 1.104	0.00002 1.000 0.490
Age1 dummy Less than 15 = 1 Other = 0	0.155 1.167 0.524	0.734 2.083 1.665	-0.073 0.929 -0.166
Age2 dummy 15 - 44 = 1 Other = 0	0.374 1.454 1.340	0.833 2.301 2.030	0.054 1.056 0.124
Married Married = 1 Other = 0	-0.394 0.673 -1.285	-0.020 0.979 -0.048	-0.033 0.966 -0.081
Single Single = 1 Other = 0	-0.652 0.520 -2.408	-0.543 0.580 -1.320	-0.335 0.715 -0.740
Walking time to closest government health facility	-0.016 0.984 -9.864	-0.021 0.978 -8.064	-0.016 0.983 -7.604
Hawsa dummy Hawsa = 1 other = 0	0.361 1.435 0.986	-0.043 0.957 -0.114	0.109 1.116 0.306
Zarma dummy Zarma = 1 other = 0	0.257 1.294 1.223	-0.112 0.893 -0.362	—-
Education	0.038 1.039 0.604	0.008 1.008 0.110	0.388 1.474 3.530
No. of obs. Log-likelihood Pseudo R-SQ	1,234 -479.97 0.156	706 -216.52 0.238	956 -212.39 0.234

	BASELINE	FOLLOW-UP
EXHIBIT A-7 **HEALTH SEEKING AT PUBLIC FACILITIES (ACROSS DISTRICTS): AGE LESS THAN 5** **LOGIT (NO=0, YES=1)** (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)		
Boboye dummy Boboye = 1 Other = 0	1.009 2.743 2.119	1.479 4.389 3.470
Say dummy Say = 1 Other = 0	0.793 2.212 1.610	1.116 3.055 2.701
Per capita monthly expenditures	0.00005 1.000 0.872	0.00007 1.000 1.745
Gender Female = 2 Male = 1	0.141 1.151 0.609	-0.063 0.938 -0.280
Walking time to closest government health facility	-0.014 0.985 -7.427	-0.010 0.989 -6.142
Tribal dummy Hawsa = 1 Other = 0	0.961 2.616 2.106	1.040 2.830 2.624
Zarma dummy Zarma = 1 Other = 0	0.410 1.507 1.209	0.331 1.393 1.067
Education	—-	—-
No. of obs. Log-likelihood Pseudo R-SQ	673 -242.65 0.162	711 -263.93 0.1236

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	BOBOYE	SAY	ILLÉLA
EXHIBIT A-8			
HEALTH SEEKING AT PUBLIC FACILITIES (DISTRICT-SPECIFIC MODELS): AGE LESS THAN 5			
LOGIT (NO=0, YES=1)			
(The first number is the coefficient, the second is the odds ratio,			
and the third line is the t-statistic)			
Year dummy 1993 = 1 1992 = 0	0.275 1.317 0.871	0.075 1.078 0.216	-0.335 0.714 -1.089
Drug Availability	-0.165 0.847 -0.577	0.015 1.015 0.046	-0.583 0.557 -1.732
Per capita monthly expenditures	0.00006 1.000 1.193	0.0001 1.000 2.028	0.00001 1.000 0.164
Gender Female = 2 Male = 1	0.081 1.085 0.346	0.087 1.091 0.266	-0.077 0.924 -0.253
Walking time to closest government health facility	-0.011 0.988 -5.967	-0.016 0.983 -5.404	-0.009 0.990 -4.598
Hawsa dummy Hawsa = 1 other = 0	1.183 3.266 2.196	-0.003 0.996 -0.006	1.911 6.763 2.584
Zarma dummy Zarma = 1 other = 0	0.404 1.498 1.239	0.241 1.273 0.649	1.488 4.432 1.079
Education	-0.297 0.742 -0.594	—-	—-
No. of obs. Log-likelihood Pseudo R-SQ	521 -227.83 0.115	383 -124.04 0.203	482 -150.66 0.129

	BASELINE	FOLLOW-UP
EXHIBIT A-9 HEALTH SEEKING AT PUBLIC FACILITIES (ACROSS DISTRICTS): AGE LESS THAN 16 LOGIT (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)		
Boboye dummy Boboye = 1 Other = 0	0.788 2.200 2.494	1.399 4.053 4.294
Say dummy Say = 1 Other = 0	0.823 2.279 2.494	0.810 2.249 2.579
Per capita monthly expenditures	0.00008 1.000 1.893	0.0001 1.000 2.943
Gender Female = 2 Male = 1	-0.004 0.995 -0.029	0.113 1.119 0.677
Walking time to closest government health facility	-0.015 0.984 -10.232	-0.014 0.986 -9.631
Tribal dummy Hawsa = 1 Other = 0	0.572 1.772 1.896	0.461 1.586 1.570
Zarma dummy Zarma = 1 Other = 0	0.374 1.454 1.627	0.025 1.025 0.112
Education	-0.051 0.949 -0.871	0.044 1.045 0.679
No. of obs. Log-likelihood Pseudo R-SQ	1,473 -469.66 0.170	1,420 -477.36 0.1678

	EXHIBIT A-10 HEALTH SEEKING AT PUBLIC FACILITIES (DISTRICT-SPECIFIC MODELS): AGE LESS THAN 16 LOGIT (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)		
	BOBOYE	SAY	ILLÉLA
Year dummy 1993 = 1 1992 = 0	0.703 2.020 2.761	-0.046 0.954 -0.186	-0.164 0.848 -0.628
Drug Availability	-0.232 0.792 -1.050	-0.106 0.898 -0.454	-0.791 0.453 -2.725
Per capita monthly expenditures	0.00008 1.000 2.125	0.0001 1.000 3.177	0.00004 1.000 0.749
Gender Female = 2 Male = 1	0.048 1.050 0.285	0.162 1.176 0.685	-0.166 0.846 -0.649
Walking time to closest government health facility	-0.015 0.984 -9.507	-0.016 0.983 -7.397	-0.010 0.989 -6.084
Hawsa dummy Hawsa = 1 other = 0	0.421 1.523 1.151	0.060 1.062 0.165	1.624 5.076 2.683
Zarma dummy Zarma = 1 other = 0	0.249 1.283 1.148	-0.132 0.876 -0.452	1.067 2.908 0.836
Education	-0.054 0.946 0.946	-0.018 0.981 -0.202	-0.025 0.975 -0.136
No. of obs. Log-likelihood Pseudo R-SQ	1,141 -440.56 0.160	772 -237.54 0.196	890 -220.27 0.143

	BASELINE	FOLLOW-UP
EXHIBIT A-11 HEALTH SEEKING AT PUBLIC FACILITIES (ACROSS DISTRICTS): AGE GREATER THAN 44 LOGIT (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)		
Boboye dummy Boboye = 1 Other = 0	-0.149 0.861 -0.269	0.711 2.036 1.098
Say dummy Say = 1 Other = 0	-0.166 0.846 -0.302	-0.385 0.680 -0.575
Per capita monthly expenditures	0.0001 1.000 1.347	-0.0001 0.999 -0.961
Gender Female = 2 Male = 1	-0.336 0.714 -0.971	-0.303 0.738 -0.807
Married Married = 1 Other = 0	-0.612 0.541 -1.544	-0.636 0.528 -1.389
Single Single = 1 Other = 0	—-	—-
Walking time to closest government health facility	-0.009 0.990 -4.692	-0.015 0.984 -5.079
Tribal dummy Hawsa = 1 Other = 0	0.052 1.054 0.102	-1.021 0.359 -1.606
Zarma dummy Zarma = 1 Other = 0	0.754 2.126 1.802	0.315 1.371 0.746
Education	-0.151 0.859 -0.796	-0.007 0.992 -0.038
No. of obs. Log-likelihood Pseudo R-SQ	502 -169.94 0.103	496 -131.07 0.202

	EXHIBIT A-12 HEALTH SEEKING AT PUBLIC FACILITIES (DISTRICT-SPECIFIC MODELS): AGE GREATER THAN 44 LOGIT (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)		
	BOBOYE	SAY	ILLÉLA
Year dummy 1993 = 1 1992 = 0	0.652 1.920 1.644	-0.708 0.492 -1.249	-0.949 0.386 -2.000
Drug Availability	-0.418 0.657 -1.206	-0.037 0.963 -0.066	-0.151 0.859 -0.279
Per capita monthly expenditures	0.0001 1.000 1.050	-0.00001 0.999 -0.086	-0.0002 0.999 -0.970
Gender Female = 2 Male = 1	-0.682 0.505 -2.000	0.246 1.279 0.552	0.259 1.296 0.477
Married Married = 1 Other = 0	-0.924 0.396 -2.285	-0.561 0.570 -0.928	0.355 1.427 0.533
Single Single = 1 Other = 0	—-	—-	—-
Walking time to closest government health facility	-0.010 0.989 -4.557	-0.018 0.981 -3.767	-0.009 0.990 -3.242
Hawsa dummy Hawsa = 1 other = 0	-1.974 0.138 -1.811	0.129 1.138 0.149	0.025 1.025 0.042
Zarma dummy Zarma = 1 other = 0	-0.031 0.969 -0.093	1.780 5.930 3.058	—-
Education	-0.089 0.914 -0.590	-0.450 0.637 -0.637	—-
No. of obs. Log-likelihood Pseudo R-SQ	411 -166.70 0.111	276 -53.76 0.276	309 -72.57 0.113

	BASELINE	FOLLOW-UP
EXHIBIT A-13		
HEALTH SEEKING AT PUBLIC FACILITIES (ACROSS DISTRICTS): LESS THAN ONE-HOUR WALK		
LOGIT (NO=0, YES=1)		
(The first number is the coefficient, the second is the odds ratio,		
and the third line is the t-statistic)		

	BASELINE	FOLLOW-UP
Boboye dummy Boboye = 1 Other = 0	0.206 1.229 0.783	1.387 4.006 4.574
Say dummy Say = 1 Other = 0	0.430 1.537 1.432	0.811 2.250 2.472
Per capita monthly expenditures	1.000 0.065	0.00004 1.000 1.011
Gender Female = 2 Male = 1	0.016 1.016 0.096	0.315 1.370 1.637
Age1 dummy Less than 15 = 1 Other = 0	0.107 1.113 0.360	0.657 1.929 1.830
Age2 dummy 15 - 44 = 1 Other = 0	0.679 1.972 2.545	0.305 1.357 1.038
Married Married = 1 Other = 0	-0.505 0.603 -1.777	0.191 1.211 0.549
Single Single = 1 Other = 0	-0.461 0.630 -1.802	0.205 1.228 0.653
Walking time to closest government health facility	-0.028 0.972 -3.467	-0.030 0.969 -4.306
Tribal dummy Hawsa = 1 Other = 0	-0.193 0.824 -0.665	-0.057 0.943 -0.184
Zarma dummy Zarma = 1 Other = 0	0.290 1.337 1.103	-0.276 0.758 -0.976
Education	-0.007 0.992 -0.156	-0.00006 0.999 -0.001
No. of obs. Log-likelihood Pseudo R-SQ	672 -414.05 0.053	593 -345.16 0.086

	BOBOYE	SAY	ILLÉLA
EXHIBIT A-14 HEALTH SEEKING AT PUBLIC FACILITIES (DISTRICT-SPECIFIC MODELS): LESS THAN ONE-HOUR WALK LOGIT (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)			
Year dummy 1993 = 1 1992 = 0	-0.199 0.819 -0.410	-0.669 0.512 -1.423	-0.595 0.551 -2.463
Drug Availability	0.620 1.860 1.413	0.701 2.107 1.334	-0.706 0.493 -2.114
Per capita monthly expenditures	0.00008 1.000 1.749	-0.00001 0.999 -0.303	-0.00001 0.999 -0.184
Gender Female = 2 Male = 1	0.209 1.232 1.097	0.389 1.476 1.361	-0.025 0.974 -0.112
Age1 dummy Less than 15 = 1 Other = 0	0.488 1.630 1.436	0.556 1.743 1.153	0.114 1.121 0.271
Age2 dummy 15 - 44 = 1 Other = 0	0.176 1.192 0.628	1.035 2.817 2.287	0.680 1.974 1.841
Married Married = 1 Other = 0	0.159 1.172 0.474	-0.503 0.604 -1.803	-0.440 0.643 -1.135
Single Single = 1 Other = 0	0.182 1.199 0.659	-0.982 0.374 -1.995	-0.560 0.570 -1.491
Walking time to closest government health facility	-0.024 0.976 -3.310	-0.051 0.949 -4.223	-0.039 0.961 -2.732
Hawsa dummy Hawsa = 1 other = 0	-0.416 0.659 -1.193	-0.392 0.675 -0.931	0.214 1.238 0.532
Zarma dummy Zarma = 1 other = 0	-0.003 0.996 -0.014	0.044 1.045 0.126	-0.886 0.411 -0.747
Education	-0.065 0.936 -1.185	0.060 1.062 0.718	0.143 1.154 1.538
No. of obs. Log-likelihood Pseudo R-SQ	542 -344.12 0.051	266 -160.19 0.108	457 -244.81 0.058

	BASELINE	FOLLOW-UP
EXHIBIT A-15 **HEALTH SEEKING AT PUBLIC FACILITIES (ACROSS DISTRICTS): MORE THAN 3 HOURS' WALK** **LOGIT (NO=0, YES=1)** (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)		
Boboye dummy Boboye = 1 Other = 0	0.636 1.889 0.783	0.915 2.497 0.966
Say dummy Say = 1 Other = 0	0.314 1.370 0.367	0.749 2.116 0.804
Per capita monthly expenditures	0.00003 1.000 0.345	0.00008 1.000 1.681
Gender Female = 2 Male = 1	-0.752 0.471 -2.057	-1.036 0.354 -2.266
Age1 dummy Less than 15 = 1 Other = 0	-0.735 0.479 -1.089	0.271 1.311 0.295
Age2 dummy 15 - 44 = 1 Other = 0	-0.192 0.825 -0.394	0.508 1.663 0.706
Married Married = 1 Other = 0	-0.497 0.608 -0.754	-0.600 0.548 -0.713
Single Single = 1 Other = 0	-0.737 0.478 -1.102	-0.157 0.854 -0.223
Walking time to closest government health facility	0.001 1.001 0.548	0.00009 1.000 0.022
Tribal dummy Hawsa = 1 Other = 0	0.597 1.818 0.763	1.910 6.757 1.958
Zarma dummy Zarma = 1 Other = 0	0.544 1.723 0.917	0.958 2.608 1.179
Education	0.029 1.030 0.179	-0.106 0.899 -0.415
No. of obs. Log-likelihood Pseudo R-SQ	965 -148.20 0.035	931 -106.59 0.073

	BOBOYE	SAY	ILLÉLA
EXHIBIT A-16 HEALTH SEEKING AT PUBLIC FACILITIES (DISTRICT-SPECIFIC MODELS): MORE THAN 3 HOURS' WALK LOGIT (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)			
Year dummy 1993 = 1 1992 = 0	-0.619 0.538 -1.304	-0.708 0.492 -0.905	-0.020 0.980 -0.045
Drug Availability	0.199 1.221 0.444	-0.084 0.919 -0.123	0.239 1.270 0.476
Per capita monthly expenditures	0.00002 1.000 0.411	0.00006 1.000 0.457	0.0002 1.000 2.292
Gender Female = 2 Male = 1	-1.072 0.342 -2.319	-1.149 0.316 -1.632	-0.532 0.586 -1.194
Age1 dummy Less than 15 = 1 Other = 0	-1.614 0.199 -2.069	2.326 10.245 1.662	-0.315 0.729 -0.412
Age2 dummy 15 - 44 = 1 Other = 0	0.272 1.313 0.457	1.103 3.016 1.226	-0.676 0.508 -0.886
Married Married = 1 Other = 0	-1.628 0.196 -2.098	3.050 21.121 2.203	-1.163 0.312 -1.456
Single Single = 1 Other = 0	-1.990 0.136 -1.977	1.750 5.760 1.612	-0.127 0.880 -0.198
Walking time to closest government health facility	-0.006 0.993 -1.154	0.001 1.001 0.460	0.008 1.008 1.136
Hawsa dummy Hawsa = 1 other = 0	0.093 1.098 0.073	2.466 11.781 1.750	1.256 3.512 1.178
Zarma dummy Zarma = 1 other = 0	0.409 1.505 0.619	1.315 3.725 1.822	—-
Education	-0.001 0.998 -0.008	—-	0.120 1.128 0.641
No. of obs. Log-likelihood Pseudo R-SQ	566 -98.34 0.067	493 -48.24 0.1452	807 -96.26 0.078

EXHIBIT A-17 HEALTH SEEKING AT PUBLIC FACILITIES (ACROSS DISTRICTS): MORE THAN 2 HOURS' WALK LOGIT (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)		
	BASELINE	FOLLOW-UP
Boboye dummy Boboye = 1 Other = 0	0.510 1.666 0.922	1.323 3.757 2.349
Say dummy Say = 1 Other = 0	0.632 1.882 1.241	1.028 2.797 2.105
Per capita monthly expenditures	0.00001 1.000 0.339	0.00004 1.000 1.402
Gender Female = 2 Male = 1	-0.246 0.781 -1.032	-0.453 0.635 -1.876
Age1 dummy Less than 15 = 1 Other = 0	-0.808 0.445 -1.906	0.472 1.603 0.821
Age2 dummy 15 - 44 = 1 Other = 0	-0.032 0.967 -0.100	-0.111 0.894 -0.291
Married Married = 1 Other = 0	-0.446 0.639 -1.070	0.299 1.348 0.541
Single Single = 1 Other = 0	-0.759 0.467 -1.655	-0.104 0.900 -0.261
Walking time to closest government health facility	-0.003 0.996 -1.625	-0.010 0.989 -4.212
Tribal dummy Hawsa = 1 Other = 0	0.353 1.423 0.717	0.573 1.773 1.193
Zarma dummy Zarma = 1 Other = 0	0.608 1.836 1.597	0.498 1.646 1.294
Education	0.116 1.123 1.318	-0.036 0.964 -0.245
No. of obs. Log-likelihood Pseudo R-SQ	1,578 -305.35 0.035	1,496 -286.80 0.081

	BOBOYE	SAY	ILLÉLA

EXHIBIT A-18
HEALTH SEEKING AT PUBLIC FACILITIES (DISTRICT-SPECIFIC MODELS): MORE THAN 2 HOURS' WALK
LOGIT (NO=0, YES=1)
(The first number is the coefficient, the second is the odds ratio,
and the third line is the t-statistic)

	BOBOYE	SAY	ILLÉLA
Year dummy 1993 = 1 1992 = 0	0.403 1.496 1.458	0.035 1.035 0.086	-0.155 0.856 -0.468
Drug Availability	-0.082 0.920 -0.237	-0.228 0.795 -0.639	-0.263 0.768 -0.790
Per capita monthly expenditures	0.00002 1.000 0.572	0.0001 1.000 1.539	0.00003 1.000 0.721
Gender Female = 2 Male = 1	-0.229 0.795 -0.952	-0.694 0.499 -1.929	-0.265 0.766 -0.770
Age1 dummy Less than 15 = 1 Other = 0	-0.904 0.404 -2.093	1.432 4.188 1.789	-0.188 0.828 -0.292
Age2 dummy 15 - 44 = 1 Other = 0	0.013 1.013 0.038	0.244 1.276 0.444	-0.294 0.745 -0.592
Married Married = 1 Other = 0	-0.855 0.425 -1.937	1.456 4.289 1.975	-0.021 0.978 -0.036
Single Single = 1 Other = 0	-1.254 0.285 -2.422	0.542 1.721 1.102	-0.079 0.923 -0.140
Walking time to closest government health facility	-0.009 0.990 -3.820	-0.005 0.994 -2.186	-0.001 0.998 -0.371
Hawsa dummy Hawsa = 1 other = 0	-0.205 0.813 -0.185	0.283 1.327 0.410	0.520 1.682 1.026
Zarma dummy Zarma = 1 other = 0	0.206 1.229 0.527	0.786 2.195 2.182	—-
Education	0.032 1.033 0.241	0.065 1.067 0.495	0.145 1.156 1.103
No. of obs. Log-likelihood Pseudo R-SQ	1,072 -274.62 0.051	793 -146.37 0.076	1,209 -166.64 0.013

	EXHIBIT A-19 HEALTH SEEKING AT PUBLIC FACILITIES (ACROSS DISTRICTS): POOREST QUARTILE LOGIT (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)	
	BASELINE	FOLLOW-UP
Boboye dummy Boboye = 1 Other = 0	-0.244 0.783 -0.420	1.762 5.824 2.801
Say dummy Say = 1 Other = 0	-0.025 0.974 -0.046	0.319 1.376 0.560
Per capita monthly expenditures	0.001 1.001 1.356	-0.0001 0.999 -0.141
Gender Female = 2 Male = 1	0.009 1.009 0.037	-0.135 0.873 -0.444
Age1 dummy Less than 15 = 1 Other = 0	0.023 1.023 0.046	1.002 2.723 1.283
Age2 dummy 15 - 44 = 1 Other = 0	0.023 1.390 0.754	0.301 1.352 0.624
Married Married = 1 Other = 0	-0.305 0.736 -0.611	0.996 2.708 1.352
Single Single = 1 Other = 0	-0.768 0.463 -1.478	0.611 1.843 1.425
Walking time to closest government health facility	-0.010 0.989 -4.806	-0.017 0.982 -6.140
Tribal dummy Hawsa = 1 Other = 0	-0.307 0.735 -0.640	-0.897 0.407 -1.572
Zarma dummy Zarma = 1 Other = 0	0.113 1.120 0.254	-0.930 0.394 -1.755
Education	-0.272 0.761 -0.879	-0.071 0.930 -0.448
No. of obs. Log-likelihood Pseudo R-SQ	641 -189.52 0.089	602 -159.33 0.210

	BOBOYE	SAY	ILLÉLA
EXHIBIT A-20 HEALTH SEEKING AT PUBLIC FACILITIES (DISTRICT-SPECIFIC MODELS): POOREST QUARTILE LOGIT (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)			
Year dummy 1993 = 1 1992 = 0	0.652 1.920 1.638	-0.647 0.523 -1.146	-1.112 0.328 -2.786
Drug Availability	0.114 1.120 0.344	-0.104 0.900 -0.259	-0.537 0.584 -1.368
Per capita monthly expenditures	-0.0008 0.999 -0.686	0.002 1.002 1.005	0.002 1.002 1.265
Gender Female = 2 Male = 1	-0.334 0.715 -1.101	-0.179 0.835 -0.397	0.435 1.545 1.146
Age1 dummy Less than 15 = 1 Other = 0	-0.233 0.791 -0.383	3.466 32.021 2.380	-0.0008 0.999 -0.001
Age2 dummy 15 - 44 = 1 Other = 0	0.319 1.376 0.706	1.694 5.445 1.430	-0.271 0.762 -0.492
Married Married = 1 Other = 0	-0.145 0.864 -0.233	1.719 5.580 1.674	0.242 1.274 0.387
Single Single = 1 Other = 0	-0.609 0.543 -1.230	0.754 2.127 1.247	0.396 1.486 0.650
Walking time to closest government health facility	-0.015 0.984 -5.379	-0.016 0.983 -3.804	-0.011 0.988 -4.148
Hawsa dummy Hawsa = 1 other = 0	-0.116 0.889 -0.137	0.457 1.579 0.521	-0.511 0.599 -1.153
Zarma dummy Zarma = 1 other = 0	-0.164 0.848 -0.384	-0.630 0.532 -0.909	—-
Education	-0.179 0.836 -0.836	-0.048 0.953 -0.245	—-
No. of obs. Log-likelihood Pseudo R-SQ	485 -162.35 0.133	311 -70.28 0.213	430 -109.25 0.133

	BASELINE	FOLLOW-UP
EXHIBIT A-21 HEALTH SEEKING AT PUBLIC FACILITIES (ACROSS DISTRICTS): WEALTHIEST QUARTILE LOGIT (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)		
Boboye dummy Boboye = 1 Other = 0	0.203 1.225 0.584	1.454 4.282 3.669
Say dummy Say = 1 Other = 0	0.456 1.578 1.287	0.695 2.004 1.840
Per capita monthly expenditures	-0.00004 0.999 -1.218	0.00005 1.000 1.898
Gender Female = 2 Male = 1	0.115 1.122 0.585	-0.138 0.870 -0.635
Age1 dummy Less than 15 = 1 Other = 0	0.031 1.031 0.086	1.253 3.503 2.539
Age2 dummy 15 - 44 = 1 Other = 0	0.424 1.528 1.382	0.742 2.101 1.969
Married Married = 1 Other = 0	-0.440 0.643 -1.287	0.356 1.428 0.813
Single Single = 1 Other = 0	-0.772 0.461 -2.255	0.039 1.040 0.113
Walking time to closest government health facility	-0.013 0.986 -8.179	-0.013 0.986 -7.223
Tribal dummy Hawsa = 1 Other = 0	0.109 1.115 0.348	0.385 1.470 1.141
Zarma dummy Zarma = 1 Other = 0	0.446 1.562 1.738	-0.151 0.859 -0.512
Education	0.127 1.135 2.312	0.087 1.091 1.348
No. of obs. Log-likelihood Pseudo R-SQ	816 -334.17 0.172	756 -281.06 0.193

	BOBOYE	SAY	ILLÉLA
EXHIBIT A-22 HEALTH SEEKING AT PUBLIC FACILITIES (DISTRICT-SPECIFIC MODELS): WEALTHIEST QUARTILE LOGIT (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)			
Year dummy 1993 = 1 1992 = 0	0.486 1.626 1.715	-0.438 0.645 -1.522	-0.681 0.505 -1.688
Drug Availability	-0.366 0.693 -1.393	-0.088 0.915 -0.296	-0.824 0.438 -2.013
Per capita monthly expenditures	1.000 0.191	0.00001 1.000 0.420	-0.00002 0.999 -0.410
Gender Female = 2 Male = 1	0.024 1.024 0.119	0.053 1.054 0.196	0.061 1.063 0.174
Age1 dummy Less than 15 = 1 Other = 0	0.163 1.177 0.436	0.868 2.383 1.581	1.835 6.270 1.990
Age2 dummy 15 - 44 = 1 Other = 0	0.139 1.149 0.450	1.054 2.869 2.282	1.131 3.101 1.630
Married Married = 1 Other = 0	-0.184 0.831 -0.509	-0.276 0.758 -0.558	0.655 1.926 0.908
Single Single = 1 Other = 0	-0.207 0.812 0.812	-0.954 0.384 -1.918	-0.489 0.613 -0.778
Walking time to closest government health facility	-0.011 0.988 -5.988	-0.014 0.985 -5.871	-0.015 0.984 -6.314
Hawsa dummy Hawsa = 1 other = 0	-0.289 0.748 -0.753	0.036 1.037 0.096	1.997 7.373 2.517
Zarma dummy Zarma = 1 other = 0	-0.049 0.951 -0.197	0.233 1.263 0.712	—-
Education	0.062 1.064 1.060	0.151 1.164 2.151	0.348 1.417 2.887
No. of obs. Log-likelihood Pseudo R-SQ	634 -311.50 0.108	443 -178.18 0.198	493 -119.00 0.264

	Baseline	Follow-up
EXHIBIT A-23 ENROLLMENT IN PRENATAL CHECK-UP PROGRAM (ACROSS DISTRICTS) LOGIT (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)		
Boboye dummy Boboye = 1 Other = 0	1.152 3.164 (3.03)	1.392 4.024 (3.63)
Say dummy Say = 1 Other = 0	1.440 4.222 (4.24)	1.485 4.415 (4.03)
Per capita monthly expenditures	0.00006 1.00006 (1.501)	0.0001 1.0001 (2.73)
Household size	0.011 1.011 (0.75)	0.029 1.029 (1.64)
Walking time to closest government health facility	-0.014 0.986 (10.7)	-0.014 0.986 (10.7)
Hawsa dummy Hawsa = 1 other = 0	1.263 3.535 (3.80)	1.027 2.793 (2.89)
Zarma dummy Zarma = 1 other = 0	1.081 2.948 (4.04)	1.068 2.909 (4.28)
Education	-0.011 0.989 (0.18)	0.052 1.053 (0.84)
No. of obs. Log-likelihood Pseudo R-SQ	819 -413.6 0.206	814 -416.8 0.222

	BOBOYE	SAY	ILLÉLA
EXHIBIT A-24 **ENROLLMENT IN PRENATAL CHECK-UP PROGRAM (DISTRICT-SPECIFIC)** **LOGIT (NO=0, YES=1)** (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)			
Year dummy 1993 = 1 1992 = 0	0.643 1.903 2.875	0.224 1.251 0.931	-0.318 0.727 -1.180
Drug Availability	-0.390 0.676 -1.790	0.107 1.113 0.462	-0.654 0.519 -2.116
Per capita monthly expenditures	0.00008 1.000 1.763	0.00009 1.000 2.214	0.00006 1.000 0.995
Household size	0.026 1.026 1.551	0.020 1.021 0.873	-0.004 0.995 -0.207
Walking time to closest government health facility	-0.009 0.990 -7.426	-0.013 0.986 -7.278	-0.026 0.973 -9.914
Hawsa dummy Hawsa = 1 other = 0	3.350 28.530 4.732	2.576 13.151 4.829	-0.224 0.799 -0.675
Zarma dummy Zarma = 1 other = 0	1.542 4.674 5.401	0.789 2.201 2.915	—-
Education	0.037 1.038 0.470	0.031 1.032 0.531	0.033 1.033 0.259
No. of obs. Log-likelihood Pseudo R-SQ	625 -366.39 0.144	450 -226.62 0.240	556 -186.36 0.3762

	BASELINE	FOLLOW-UP
EXHIBIT A-25		
ENROLLMENT IN PRENATAL CHECK-UP PROGRAM (ACROSS DISTRICTS): LESS THAN ONE-HOUR WALK		
LOGIT (NO=0, YES=1)		
(The first number is the coefficient, the second is the odds ratio,		
and the third line is the t-statistic)		
Boboye dummy Boboye = 1 Other = 0	-0.676 0.508 -1.412	0.169 1.184 0.318
Say dummy Say = 1 Other = 0	-0.571 0.564 -0.899	0.325 1.384 0.495
Per capita monthly expenditures	-0.0001 0.999 -1.188	0.00009 1.000 0.892
Household size	0.001 1.001 0.045	-0.088 0.915 -2.139
Walking time to closest government health facility	-0.090 0.913 -4.559	-0.061 0.940 -3.790
Hawsa dummy Hawsa = 1 other = 0	-0.796 0.450 -1.284	-0.475 0.621 -0.845
Zarma dummy Zarma = 1 other = 0	-0.486 0.614 -0.728	0.713 2.040 1.081
Education	-0.017 0.982 -0.156	-0.007 0.992 -0.041
No. of obs. Log-likelihood Pseudo R-SQ	174 -87.33 0.189	188 -95.65 0.158

EXHIBIT A-26 ENROLLMENT IN PRENATAL CHECK-UP PROGRAM (DISTRICT-SPECIFIC): LESS THAN ONE-HOUR WALK LOGIT (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)			
	BOBOYE	SAY	ILLÉLA
Year dummy 1993 = 1 1992 = 0	-0.514 0.597 -0.359	-0.184 0.831 -0.177	-0.789 0.454 -1.967
Drug Availability	1.168 3.218 0.905	1.243 3.467 1.282	-1.316 0.268 -2.072
Per capita monthly expenditures	0.0002 1.000 1.223	-0.00001 0.999 -0.105	0.00006 1.000 0.613
Household size	-0.018 0.981 -0.336	0.123 1.131 1.294	-0.016 0.983 -0.626
Walking time to closest government health facility	-0.063 0.938 -3.807	-0.052 0.949 -2.251	-0.083 0.920 -2.888
Hawsa dummy Hawsa = 1 other = 0	1.406 4.083 1.171	—-	-2.045 0.129 -3.028
Zarma dummy Zarma = 1 other = 0	0.756 2.129 1.119	0.382 1.465 0.473	—-
Education	-0.097 0.907 -0.658	0.053 1.054 0.313	-0.074 0.928 -0.421
No. of obs. Log-likelihood Pseudo R-SQ	129 -56.15 0.316	66 -31.90 0.152	155 -85.04 0.120

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	EXHIBIT A-27	
	ENROLLMENT IN PRENATAL CHECK-UP PROGRAM (ACROSS DISTRICTS):	
	GREATER THAN 3 HOURS' WALK	
	LOGIT (NO=0, YES=1)	
	(The first number is the coefficient, the second is the odds ratio,	
	and the third line is the t-statistic)	
	BASELINE	FOLLOW-UP
Boboye dummy Boboye = 1 Other = 0	4.931 138.569 3.843	3.134 22.987 3.258
Say dummy Say = 1 Other = 0	3.065 21.438 1.858	2.485 12.001 2.611
Per capita monthly expenditures	0.00009 1.000 1.176	0.0001 1.000 1.772
Household size	-0.046 0.954 -1.010	0.072 1.074 1.576
Walking time to closest government health facility	0.001 1.001 0.226	0.0004 1.000 0.101
Hawsa dummy Hawsa = 1 other = 0	2.965 19.396 2.179	1.888 6.610 2.115
Zarma dummy Zarma = 1 other = 0	0.759 2.136 0.688	0.242 1.274 0.351
Education	—-	-0.155 0.856 -0.626
No. of obs. Log-likelihood Pseudo R-SQ	257 -64.27 0.216	252 -76.23 0.152

	EXHIBIT A-28 ENROLLMENT IN PRENATAL CHECK-UP PROGRAM (DISTRICT-SPECIFIC): GREATER THAN 3 HOURS' WALK LOGIT (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)		
	BOBOYE	SAY	ILLÉLA
Year dummy 1993 = 1 1992 = 0	0.444 1.560 0.976	2.052 7.789 1.492	0.982 2.671 1.074
Drug Availability	-1.082 0.338 -2.252	-1.398 0.247 -1.234	0.277 1.320 0.347
Per capita monthly expenditures	0.00008 1.000 1.130	0.00009 1.000 1.115	0.0002 1.000 1.424
Household size	-0.006 0.993 -0.187	-0.024 0.976 -0.223	0.157 1.171 1.471
Walking time to closest government health facility	0.007 1.007 1.266	0.0005 1.000 0.115	-0.022 0.978 -1.055
Hawsa dummy Hawsa = 1 other = 0	3.030 20.705 2.160	2.510 12.312 2.088	0.561 1.753 0.478
Zarma dummy Zarma = 1 other = 0	1.183 3.265 1.076	1.011 2.749 0.985	—-
Education	—-	-0.153 0.857 -0.578	—-
No. of obs. Log-likelihood Pseudo R-SQ	168 -81.69 0.102	124 -27.81 0.138	212 -24.13 0.116

	BASELINE	FOLLOW-UP
	EXHIBIT A-29 ENROLLMENT IN PRENATAL CHECK-UP PROGRAM (ACROSS DISTRICTS): GREATER THAN 2 HOURS' WALK LOGIT (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)	
Boboye dummy Boboye = 1 Other = 0	3.984 53.737 5.068	3.151 23.374 4.145
Say dummy Say = 1 Other = 0	4.060 57.990 5.532	2.781 16.144 3.825
Per capita monthly expenditures	0.0001 1.000 1.735	0.00008 1.000 1.469
Household size	-0.008 0.991 -3.548	0.084 1.087 2.874
Walking time to closest government health facility	-0.008 0.991 -0.302	-0.008 0.991 -3.432
Hawsa dummy Hawsa = 1 other = 0	3.302 27.171 4.621	1.865 6.457 2.656
Zarma dummy Zarma = 1 other = 0	1.159 3.188 2.266	0.510 1.665 1.238
Education	-0.245 0.781 -1.319	0.080 1.083 0.858
No. of obs. Log-likelihood Pseudo R-SQ	450 -163.79 0.204	438 -180.60 0.162

	BOBOYE	SAY	ILLÉLA
EXHIBIT A-30 **ENROLLMENT IN PRENATAL CHECK-UP PROGRAM (DISTRICT-SPECIFIC):** **GREATER THAN 2 HOURS' WALK** **LOGIT (NO=0, YES=1)** (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)			
Year dummy 1993 = 1 1992 = 0	0.786 2.194 2.549	0.436 1.546 0.971	0.135 1.145 0.274
Drug Availability	-1.196 0.302 -3.179	-0.215 0.805 -0.561	0.177 1.194 0.331
Per capita monthly expenditures	0.00006 1.000 1.006	0.00009 1.000 1.603	0.00009 1.000 0.697
Household size	0.001 1.001 0.048	0.073 1.076 1.912	0.021 1.022 0.430
Walking time to closest government health facility	-0.004 0.995 -2.050	-0.010 0.989 -3.094	-0.021 0.979 -3.030
Hawsa dummy Hawsa = 1 other = 0	3.196 24.454 2.722	2.322 10.200 3.580	2.036 7.661 1.902
Zarma dummy Zarma = 1 other = 0	1.827 6.217 2.423	0.329 1.390 0.741	—-
Education	0.026 1.026 0.190	0.011 1.011 0.108	—-
No. of obs. Log-likelihood Pseudo R-SQ	316 -176.50 0.082	226 -94.36 0.192	327 -64.79 0.139

	BASELINE	FOLLOW-UP
EXHIBIT A-31 ENROLLMENT IN PRENATAL CHECK-UP PROGRAM (ACROSS DISTRICTS): POOREST QUARTILE LOGIT (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)		
Boboye dummy Boboye = 1 Other = 0	1.911 6.763 1.936	0.822 2.275 0.888
Say dummy Say = 1 Other = 0	0.747 2.112 0.888	0.755 2.129 1.094
Per capita monthly expenditures	0.002 1.002 1.561	0.003 1.003 1.848
Household size	0.011 1.011 0.306	0.042 1.043 1.342
Walking time to closest government health facility	-0.016 0.983 -5.038	-0.013 0.986 -4.728
Hawsa dummy Hawsa = 1 other = 0	1.168 3.217 1.460	-0.806 0.446 -1.149
Zarma dummy Zarma = 1 other = 0	0.613 1.847 0.806	0.216 1.242 0.297
Education	-0.053 0.947 -0.251	0.293 1.340 1.592
No. of obs. Log-likelihood Pseudo R-SQ	188 -87.47 0.230	195 -94.86 0.200

	BOBOYE	SAY	ILLÉLA
EXHIBIT A-32 **ENROLLMENT IN PRENATAL CHECK-UP PROGRAM (DISTRICT-SPECIFIC): POOREST QUARTILE** **LOGIT (NO=0, YES=1)** (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)			
Year dummy 1993 = 1 1992 = 0	0.078 1.081 0.174	0.877 2.405 1.374	-1.363 0.255 -1.613
Drug Availability	-0.281 0.754 -0.663	0.220 1.247 0.424	-0.369 0.690 -0.489
Per capita monthly expenditures	0.001 1.001 0.952	0.003 1.003 1.378	0.006 1.006 1.700
Household size	0.038 1.039 1.332	-0.012 0.988 -0.180	-0.110 0.895 -1.340
Walking time to closest government health facility	-0.010 0.989 -4.019	-0.011 0.988 -2.450	-0.056 0.944 -4.556
Hawsa dummy Hawsa = 1 other = 0	20.417 13.192	0.496 1.643 0.433	-1.390 0.248 -1.493
Zarma dummy Zarma = 1 other = 0	18.580 15.751	0.378 1.460 0.508	—-
Education	0.119 1.126 0.616	0.121 1.129 0.639	0.215 1.240 0.260
No. of obs. Log-likelihood Pseudo R-SQ	167 -95.18 0.153	89 -41.65 0.163	127 -25.26 0.589

	BASELINE	FOLLOW-UP
EXHIBIT A-33 **ENROLLMENT IN PRENATAL CHECK-UP PROGRAM (ACROSS DISTRICTS): WEALTHIEST QUARTILE** **LOGIT (NO=0, YES=1)** (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)		
	BASELINE	FOLLOW-UP
Boboye dummy Boboye = 1 Other = 0	1.922 6.840 2.703	2.883 17.884 3.450
Say dummy Say = 1 Other = 0	2.512 12.329 3.636	2.413 11.173 2.992
Per capita monthly expenditures	0.00003 1.000 0.566	0.0001 1.0001 1.922
Household size	0.010 1.010 0.323	0.080 1.084 2.122
Walking time to closest government health facility	-0.011 0.988 -5.016	-0.014 0.985 -6.113
Hawsa dummy Hawsa = 1 other = 0	1.364 3.912 2.038	2.121 8.346 2.703
Zarma dummy Zarma = 1 other = 0	1.065 2.901 1.968	0.718 2.052 1.563
Education	0.0003 1.000 0.004	-0.075 0.926 -0.764
No. of obs. Log-likelihood Pseudo R-SQ	217 -111.33 0.226	235 -113.22 0.290

	EXHIBIT A-34 ENROLLMENT IN PRENATAL CHECK-UP PROGRAM (DISTRICT-SPECIFIC): WEALTHIEST QUARTILE LOGIT (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio, and the third line is the t-statistic)		
	BOBOYE	SAY	ILLÉLA
Year dummy 1993 = 1 1992 = 0	1.474 4.367 2.823	-0.281 0.754 -0.647	0.206 1.228 0.382
Drug Availability	-0.911 0.402 -1.807	0.229 1.257 0.483	-0.765 0.465 -1.412
Per capita monthly expenditures	-0.00004 0.999 -0.535	0.00008 1.000 1.586	0.00009 1.000 1.155
Household size	0.119 1.126 2.641	0.044 1.045 1.025	-0.019 0.981 -0.354
Walking time to closest government health facility	-0.008 0.991 -3.359	-0.011 0.988 -3.759	-0.020 0.979 -5.085
Hawsa dummy Hawsa = 1 other = 0	1.955 7.065 1.988	—-	0.088 1.092 0.112
Zarma dummy Zarma = 1 other = 0	0.987 2.683 1.862	0.236 1.266 0.461	—-
Education	0.146 1.158 0.942	-0.081 0.921 -0.857	-0.020 0.980 -0.104
No. of obs. Log-likelihood Pseudo R-SQ	153 -85.41 0.191	121 -67.51 0.173	160 -53.33 0.321

	SAY	BOBOYE
EXHIBIT A-35 **WILLINGNESS TO PAY AT FACILITIES: LOGIT MODEL** **(NO=0, YES=1)** (The first number is the coefficient, the second is the odds ratio. T-statistics appear in parentheses)		
Illness in the last three months	0.225 1.252 (2.37)	0.122 1.130 (1.20)
Perception of drug availability	0.055 1.057 (0.30)	1.136 3.115 (3.95)
Per capita monthly expenditures	0.00003 1.00003 (1.016)	-0.00005 0.99995 (1.879)
Household size	0.016 1.017 (1.021)	-0.010 0.989 (0.59)
Walking time to closest government health facility	0.002 1.002 (2.45)	-0.001 0.998 (1.29)
Gender Female = 2 Male = 1	-0.409 0.664 (2.49)	-1.290 0.275 (6.12)
Age	-0.011 0.989 (1.98)	-0.007 0.993 (1.12)
Married = 1 other = 0	0.513 1.670 (1.94)	0.929 2.533 (3.44)
Single = 1 other = 0	-0.357 0.699 (0.97)	0.307 1.359 (0.79)
Ethnicity Zarma = 1 other = 0	0.144 1.155 (0.78)	0.092 1.097 (0.44)
Education	-0.042 0.958 (1.09)	-0.020 0.980 (0.35)
No. of obs. Log-likelihood Pseudo R-SQ	1,846 -656.6 0.0348	2,115 -556.4 0.0746

	EXHIBIT A-36 WILLINGNESS TO PAY MORE AT THE FACILITIES: LOGIT MODEL (NO=0, YES=1) (The first number is the coefficient, the second is the odds ratio. T-statistics appear in parentheses)	
	SAY	BOBOYE
Illness in the last three months	0.018 1.018 (0.248)	0.042 1.043 (0.683)
Perception of drug availability	-0.052 0.950 (0.35)	-0.203 0.816 (1.09)
Per capita monthly expenditures	0.00006 1.00006 (1.998)	0.000008 1.0 (0.34)
Household size	0.022 1.022 (1.586)	0.005 1.005 (0.45)
Walking time to closest government health facility	-0.003 0.999 (0.497)	0.0003 1.0003 (0.48)
Gender Female = 2 Male = 1	-0.380 0.684 (2.89)	-0.393 0.675 (3.49)
Age	-0.002 0.998 (0.378)	-0.0009 0.999 (0.25)
Married = 1 other = 0	0.054 0.947 (0.22)	0.046 0.955 (0.22)
Single = 1 other = 0	-0.476 0.621 (1.47)	0.137 1.147 (0.49)
Ethnicity Zarma = 1 other = 0	0.517 1.677 (3.31)	-0.014 0.986 (0.12)
Education	-0.012 0.988 (0.33)	0.061 0.985 (1.61)
No. of obs. Log-likelihood Pseudo R-SQ	1,623 -895.7 0.0165	1,941 -1208.9 0.0106

EXHIBIT A-37 AMOUNT PREPARED TO PAY AT THE FACILITY: OLS MODEL (t-statistics appear in parentheses)		
	SAY	BOBOYE
Illness in the last three months	-1.040 (0.16)	-0.613 (0.21)
Perception of drug availability	1.172 (0.09)	-18.21 (2.17)
Per capita monthly expenditures	0.006 (2.56)	0.002 (2.45)
Household size	-0.481 (0.41)	1.472 (3.10)
Walking time to closest government health facility	-0.083 (1.66)	0.065 (2.18)
Gender Female = 2 Male = 1	-30.12 (2.61)	-9.622 (1.85)
Age	-0.022 (0.06)	-0.082 (0.47)
Married = 1 other = 0	1.977 (0.09)	4.534 (0.44)
Single = 1 other = 0	-21.88 (0.76)	8.754 (0.68)
Ethnicity Zarma = 1 other = 0	-20.93 (1.71)	0.572 (0.11)
Education	-0.055 (0.02)	2.201 (1.46)
No. of obs. Adj R-SQ	1,219 0.0121	1,313 0.0169

EXHIBIT A-38 AMOUNT PREPARED TO PAY AT THE FACILITY: TOBIT MODEL (t-statistics appear in parentheses)		
	SAY	BOBOYE
Illness in the last three months	12.07 (1.58)	3.350 (0.98)
Perception of drug availability	-1.886 (0.12)	-7.46 (0.74)
Per capita monthly expenditures	0.009 (3.61)	0.001 (0.92)
Household size	2.297 (1.69)	0.914 (1.57)
Walking time to closest government health facility	-0.006 (0.11)	0.048 (1.34)
Gender Female = 2 Male = 1	-70.94 (5.21)	-34.54 (5.60)
Age	-0.728 (1.59)	-0.211 (1.02)
Married = 1 other = 0	17.55 (0.69)	8.210 (0.69)
Single = 1 other = 0	-76.47 (2.26)	5.607 (0.37)
Ethnicity Zarma = 1 other = 0	29.19 (1.97)	0.067 (0.01)
Education	-2.39 (0.68)	3.623 (1.92)
No. of obs. Log-Likelihood Pseudo R-SQ	1,846 -9045.0 0.0028	2,115 -8822.8 0.0031

	BOBOYE
EXHIBIT A-39 **WILLINGNESS TO PAY MORE IN TAXES: LOGIT MODEL** **(NO=0, YES=1)** (The first number is the coefficient, the second is the odds ratio. T-statistics appear in parentheses)	
Illness in the last three months	-0.042 0.958 (0.68)
Perception of drug availability	0.221 1.247 (1.20)
Per capita monthly expenditures	0.00007 1.0 (2.83)
Household size	0.005 1.005 (0.45)
Walking time to closest government health facility	-0.0004 0.9996 (0.57)
Gender Female = 2 Male = 1	-0.590 0.554 (5.22)
Age	-0.013 0.987 (3.28)
Married = 1 other = 0	-0.093 0.911 (0.40)
Single = 1 other = 0	-0.247 0.781 (0.87)
Ethnicity Zarma = 1 other = 0	0.155 1.168 (1.27)
Education	0.084 1.088 (2.44)
No. of obs. Log-likelihood Pseudo R-SQ	1,777 -1,172.2 0.0287

EXHIBIT A-40 AMOUNT PREPARED TO PAY IN TAXES: OLS MODEL (T-statistics appear in parentheses)		
	SAY	BOBOYE
Illness in the last three months	4.665 (0.72)	9.663 (1.61)
Perception of drug availability	-3.103 (0.25)	-19.31 (1.12)
Per capita monthly expenditures	0.007 (2.90)	0.006 (3.30)
Household size	1.456 (1.19)	2.381 (2.44)
Walking time to closest government health facility	-0.064 (1.29)	-0.020 (0.33)
Gender Female = 2 Male = 1	-19.98 (1.72)	-23.38 (2.19)
Age	-0.029 (0.07)	-0.256 (0.66)
Married = 1 other = 0	6.011 (0.26)	25.70 (1.14)
Single = 1 other = 0	-23.05 (0.77)	-12.07 (0.46)
Ethnicity Zarma = 1 other = 0	3.522 (0.29)	-17.24 (1.50)
Education	10.25 (3.28)	3.572 (1.26)
No. of obs. Adj R-SQ	1,054 0.028	724 0.028

EXHIBIT A-41 AMOUNT PREPARED TO PAY IN TAXES: TOBIT MODEL (T-statistics appear in parentheses)		
	SAY	BOBOYE
Illness in the last three months	2.009 (0.22)	-0.175 (0.01)
Perception of drug availability	-61.36 (3.37)	40.76 (1.08)
Per capita monthly expenditures	0.002 (0.75)	0.013 (3.28)
Household size	-0.489 (0.29)	1.880 (0.87)
Walking time to closest government health facility	0.129 (1.80)	-0.083 (0.62)
Gender Female = 2 Male = 1	-61.87 (3.76)	-136.55 (6.04)
Age	-1.519 (2.73)	-3.127 (3.93)
Married = 1 other = 0	27.74 (0.89)	45.09 (0.98)
Single = 1 other = 0	-80.07 (1.95)	-11.53 (0.20)
Ethnicity Zarma = 1 other = 0	63.74 (3.58)	36.17 (1.58)
Education	-0.321 (0.08)	16.80 (2.52)
No. of obs. Log-Likelihood Pseudo R-SQ	1,846 -8,142.7 0.0035	2,115 -6,087.8 0.0074

	EXHIBIT A-42	
	CHOICE OF PAYMENT METHOD: LOGIT MODEL	
	(fee for service=0, tax and co-payment=1)	
	(The first number is the coefficient, the second is the odds ratio.	
	T-statistics appear in parentheses)	
	SAY	**BOBOYE**
Illness in the last three months	0.264 1.302 (2.05)	-0.003 0.997 (0.031)
Perception of drug availability	-0.737 0.478 (2.84)	-0.027 0.973 (0.09)
Per capita monthly expenditures	0.00009 0.99991 (2.965)	-0.00004 0.999 (1.43)
Household size	-0.014 0.986 (0.68)	0.008 1.008 (0.43)
Walking time to closest government health facility	0.005 1.004 (4.05)	-0.003 0.997 (2.91)
Gender Female = 2 Male = 1	0.206 1.229 (0.95)	0.721 2.056 (3.73)
Age	-0.001 0.999 (0.10)	0.009 1.009 (1.39)
Married = 1 other = 0	0.021 1.022 (0.05)	0.096 1.101 (0.23)
Single = 1 other = 0	0.138 1.148 (0.25)	0.396 1.485 (0.80)
Ethnicity Zarma = 1 other = 0	0.334 1.396 (1.30)	0.247 1.280 (1.23)
Education	-0.033 0.967 (0.71)	-0.066 0.936 (1.28)
No. of obs. Log-likelihood Pseudo R-SQ	1,678 -406.6 0.0647	1,951 -540.2 0.0280

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